Executive Directive 6

Interim Report

Governor's Task Force

On Information Technology in Health Care

November 1, 2005

COMMONWEALTH OF VIRGINIA

OFFICE OF THE GOVERNOR

Executive Directive 6

Importance of the Issue

Continuously improving the quality and cost effectiveness of health care is one of the most significant public policy questions facing government. Information technology has shown great promise in improving patient outcomes, promoting cost effectiveness, and enhancing patient involvement. A long-range goal of public policy should be an effective health information infrastructure capable of drawing together critical health information from multiple sources and presenting that information to authorized parties in a useable format to support sound decisions about health by providers, consumers, public health officials and researchers, when and where needed. In particular the electronic health record offers significant opportunities for improving the quality of health care and for controlling costs. Developing this infrastructure will require careful planning and the involvement of all stakeholders. Moreover, the adoption of health care performance measurement and improvement incentives could be accelerated if public and private purchasers collaborated on the infrastructure and data elements necessary for evaluating care delivery in all settings

Therefore, by virtue of the authority vested in me as Governor under Article V of the *Constitution of Virginia* and under the laws of the Commonwealth, including but not limited to Chapter 1 of Title 2.2, I hereby create the Governor's Task Force on Information Technology in Health Care.

The Task Force

The working group will initially consist of 15 members appointed by the Governor and serving at his pleasure. Additional members may be appointed by the Governor at his discretion. The Governor shall designate a chair and vice chair of the group. The Secretaries of Health and Human Resources and Technology, or their designees, shall serve as ex officio, nonvoting members of the task force. Staff support will be provided by the Office of the Governor, the Secretary of Health and Human Resources, the Department of Health, the Department of Medical Assistance Services, and the Virginia Information Technologies Agency.

Responsibilities of the Task Force

The task force will be responsible for the following:

1) Fostering collaboration among stakeholders.
2) Promoting development throughout the Commonwealth, in various provider settings, of the electronic health record.
3) Initiating a plan for the development and implementation of a Virginia health information infrastructure, consistent with and complementary to developing national standards, that promote greater adoption of electronic health record information systems among all health care providers (including interoperability standards and mechanisms that allow current systems to share information with patients and other authorized users).
4) Identifying obstacles to the implementation of an effective health information infrastructure, and providing options (public policy and action as well as private action) for overcoming such obstacles.
5) Recommending additional data collection priorities and systems that are consistent across public and private payers and necessary to advance quality improvement and efficiency.
6) Ensuring that the privacy and security of health information is maintained as required by state and federal law.
7) Developing relevant performance measures and benchmarks; and
8) Making appropriate policy recommendations to the Governor and General Assembly.

The task force shall also examine other issues as may be appropriate.

Reporting Requirements

The task force shall issue a preliminary report to the Governor and General Assembly by November 1, 2005.

Effective Date of the Executive Directive

This Executive Directive shall be effective upon its signing and shall remain in full force and effect until January 14, 2006, unless sooner amended or rescinded by further executive directive.

Given under my hand this 14th day of January 2005.

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Mark R. Warner, Governor

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EXECUTIVE DIRECTIVE 6
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EXECUTIVE SUMMARY

Better information means better care. Getting patient information, cumulative and in real time, is achieved through the adoption of the electronic health records (EHR), the standardized electronic exchange of patient health information. The ability to electronically share standardized health files among healthcare systems at the same time protecting patient privacy saves money[1] as well as providing better care. Some of the work needed to standardize health information in Virginia is well underway. Often, each effort is independent and proceeding at its own pace. The Task Force report suggests approach and methodology to be considered for coordinating this independent work into cohesive health information on behalf of the citizens of Virginia.

In April 2005 Governor Warner issued Executive Directive 6 to create the Governor's Electronic Health Records (EHR) Task Force. The Task Force was established to conduct a one-year study and advise the Governor and the General Assembly in a preliminary report made by November 1, 2005.

The charge of Executive Directive 6 is as straightforward as the solution: get information about patients out of paper files and into electronic databases that can connect to one another so that any doctor in Virginia can access all the information needed to help any patient at any time and in any place. There is also a broader health need to pool medical information that can be used to find cures, battle epidemics and address health risks following natural and man-made disasters. Finally, important benefits may be realized by allowing health care consumers taking responsibility as individuals for cost and prevention through access to and possession of information about their own health.

Task Force Charge:

1. Fostering collaboration among stakeholders.
2. Promoting development throughout the Commonwealth, in various provider settings, of the electronic health record.
3. Initiating a plan for the development and implementation of a Virginia health information infrastructure, consistent with and complementary to developing national standards, that promote greater adoption of electronic health record information systems among all health care providers (including interoperability standards and mechanisms that allow current systems to share information with patients and other authorized users).
4. Identifying obstacles to the implementation of an effective health information infrastructure, and providing options (public policy and action as well as private action) for overcoming such obstacles.
5. Recommending additional data collection priorities and systems that are consistent across public and private payers and necessary to advance quality improvement and efficiency.
6. Ensuring that the privacy and security of health information is maintained as required by state and federal law.
7. Developing relevant performance measures and benchmarks; and

8. Making appropriate policy recommendations to the Governor and General Assembly.

The Governor appointed G. Gilmer Minor III, to Chair the Task Force and Secretary of Health and Human Resources, The Hon. Jane H. Woods, to serve as Vice-Chair.

The Task Force found rapid progress within hospital and health systems in terms of EHR adoptions, even relative to other states, a very positive finding. Also positive is the broad recognition among health plans of the value of wider health care IT development, the impressive "smart" EHR capabilities being implemented by integrated delivery system-model health plans and the incentives for provider adoption of certain IT tools tied to patient safety and quality outcomes. In certain cases, these EHR tools are also being extended to affiliated providers in the community, especially with health systems that include large physician practice components. More modest adoption is occurring in physician offices, but there are important exceptions in that setting as well.

Less positive, but not at all surprising, was the relatively limited progress made toward ensuring the interoperability of these systems across sectors and regions.

The current federal policy environment, the nature of many Virginia health care markets (e.g., strong regional systems), state level capabilities and initiatives and the results of the Task Force's research all point to an environment that is ripe for collaborative initiatives that build IT bridges that connect disparate components of an electronic health record and advance common quality, health improvement and efficiency goals. With the Commonwealth as a role model in action through collaboration and through a partnership with its insurance company, Virginia employees can be the first beneficiaries of the electronic health record.

Recognizing that hundreds of thousands of residents of the Commonwealth receive health care services through programs and facilities administered by the U.S. Departments of Defense and Veterans Affairs and that these federal agencies are nationally recognized as leaders in the development of adoption of health information technology in general and the electronic health record in particular, it becomes vitally important for future efforts to direct state agencies to facilitate inclusion of these populations for planning purposes.

There is great promise for improved patient care in the Commonwealth and there are challenges in getting to improved treatment outcomes and resultant cost reduction. As data drives more and more healthcare decision making, the master patient index will be the foundation for any initiative in electronic capture of information to monitor patient data across services and institutions and to insure that the domain of patient care is adaptable to and available in any care setting. Consequently, to ensure the data's quality, organizations and practices must not only invest in the technology that derives the information but in the people with the skills to manage it. Organizations and practices must also invest in computer security systems that absolutely prevent unauthorized access and allow individuals to decide who can view their information as well as when it can be shared. [2] Standards for security are publicly available on the National Committee on Vital and Health Statistics (NCVHS), the Health Insurance and Portability and Accountability

Act (HIPAA) of 1996. A National Health Information Infrastructure (NHII) office was created within HHS to provide protection impossible in a paper-based world. The Consumer Security Institute (CSI) offers training and direction in security architecture.

The health care system is not static, but evolving constantly to incorporate variables in policy and technology to serve diverse populations and data demands of policymakers. Last week Health and Human Services Secretary Mike Leavitt proposed easing rules that govern what free goods doctors can accept in an attempt encourage software and computer donations to physicians, especially those with small practices. Other changes are occurring with rapidity in the use of robust data sharing for quality improvement and the encouragement of adoption. For the first time since the conversation regarding electronic data promise, there is an newly created Office of the National Coordinator for Health Information Technology (ONCHIT) in the Office of the Secretary of Health and Human Resources (HHS). An ongoing organizational body is crucial for the Commonwealth to track, lead, and adapt to the opportunity of better health care and controlled cost through the electronic health record.

By addressing the causal factors surrounding the adoption of electronic health records in Virginia and in the nation, it is the hope of this Task Force that our findings and resultant recommendations will improve significantly the health of Virginians and the cost of health care delivery.

RECOMMENDATIONS

Rapid progress within hospital and health systems in terms of Electronic Health Records, even relative to other states, was a very positive finding in the Task Force. Also positive is the broad recognition among health plans of the value of wider health care IT development. More modest progress is being made in physician offices.

Less positive, but not at all surprising, was the relatively limited progress made toward ensuring the interoperability of these systems across sectors and regions for the Commonwealth as a whole.

The current federal policy environment, the nature of many Virginia health care markets (e.g., strong regional systems), state level capabilities and initiatives and the results of the Task Force's research all point to an environment that is ripe for collaborative initiatives that build IT bridges that connect disparate components of an electronic health record and advance common quality, health improvement and efficiency goals. Last, but not least, Virginia avoided the "first mover disadvantage" and is in the timely position to advantage the federal direction and learn from other states' experiences.

Achieving the vision of pervasive, real time, electronic health records is a journey of several years. It will require significant degrees of collaboration across providers, health plans and public sectors. But these are important ways the Commonwealth can both speed progress toward the vision and lead by example.

Task Force members are unanimous in their view that both public and private entities must commit to work together on several fronts to advance electronic health records. The strategy behind these recommendations is to connect all providers to the Commonwealth.

The Task Force offers five recommendations:

Recommendation # 1
Establish an ongoing statewide Virginia Health Care Innovations Group, with staff support from the Executive Branch.

1. Provide a cross section of stakeholders similar to the present Task Force members; expand to include additional legislative members and agency representatives from the Department of Human Resource Management, the Bureau of Insurance and the business community.
2. Responsibilities:
    a. Develop and guide implementation of an electronic health record infrastructure plan for the Commonwealth.
    b. Implement a public health education campaign which will serve to elucidate the methods the electronic health record will redress hidden costs at the same time it improves the health of Virginians and reward early adopters with recognition.
    c. Participate on the federal level to support the adoption of EHR standards and the track federal legislation to identify funding mechanisms and ongoing sustainability of projects to identify projects that best fit Virginia's goals.
    d. Construct financial models to determine best practice projects to be funded or supported by the Commonwealth.
    e. Continue the current web site http://www.ehealth.vi.virginia.gov to include pertinent information on the status of the Innovation Group as well as a vehicle for public input.

Recommendation # 2
In the state's role as a purchaser, work closely with the Departments of Human Resource Management and Medical Assistance Services to establish incentives for EHR adoption

1. The Commonwealth, through its role as a purchaser of healthcare, can also be an effective in the proliferation of EHRs.
2. The following efforts are in preliminary discussion with the Departments of Human Resource Management and the contracted third party administrators.
    a. Enrollee Education – Various communication vehicles can be used to reach plan subscribers and their dependents on the personal value of eHealth technology implementation
    b. Pay to Participate – Increased reimbursements can be afforded to practitioners who are engaged in specified eHealth activities.
    c. Personal Health Record – A personal health record could be made available to subscribers by third-party administrators. The patient could then share this record with various providers who may need historical

medical information for treatment decision-making. It could also be used as a disease management tool for those with chronic conditions who may need to track treatment compliance.

d. Commonwealth Leadership: the partnership between the state, its insurer and its enrollees/employees, to include the federal workforce be addressed forthwith, with the charge to move this action forward in a timely manner.

Recommendation # 3

Appropriate state monies to facilitate increased eHealth initiatives. The obvious entry point to spur adoption being reimbursement, the Task Force recommends providing additional funding to develop and/or enhance programs to provide interoperability.

1. Broaden participation in current ESSENCE system among hospital emergency rooms; The Commonwealth has a compelling public health need to be better prepared to monitor and respond to threats such as disease outbreaks and bioterrorism, regardless of origin. The subcommittee recommends expansion of initiatives under the auspices of the Virginia Department of Health. The Virginia Health Department project known as "Essence II" should be studied to identify best practices in sharing information about patients across various health provider systems. Essence II is a joint project with Johns Hopkins Advanced Physics Lab and the Defense Advanced Research Projects Agency.
2. Conduct financial modeling to demonstrate the cost/benefit of EHR adoption for physician practices prior to grant determinations.
3. Examine funding targeted health care information-exchange organizations,of which "RHIO" is one such organizations,-that can operate in a manner consistent with emerging federal standards and certification processes, such as:
    a) A pilot project that connects all the emergency departments in an area.
    b) Grant and/or loan repayment funds for safety-net providers to participate in regional health information exchange initiatives.
    c) Support of regional efforts in the Commonwealth's various health care markets as part of the overall health information exchange infrastructure development strategy.

Recommendation #4

Identify and support the implementation of a master patient index, (MPI) system that facilitates the secure and accurate linkage of patient medical information that resides in different systems for patients and authorized users.

A MPI system is essential for accurate and reliable health care information exchange and would be an important catalyst to emerging regional health care information exchange collaborations. MPI systems apply logic algorithms to standard demographic information to ensure the accurate assignment of patient information. The MPI system recommended here is neither a state-wide unique patient identifier system, nor a state-wide repository of protected medical information. Rather, the MPI would function more like a secure search engine allowing reliable access to patient medical care information that resides in disparate systems.

The Task Force recommends that the Commonwealth take a leadership role in developing and implementing an MPI system because:

1. Ensuring the privacy and security of patient information is of significant policy interest;
2. It is a core functionality of all interoperability initiatives; and
3. It builds on effort and expertise associated with VDH immunization registry and ESSENCE emergency data systems.

To pilot the tools and test the value of a shared MPI system, the Task Force also recommends that the methodology be applied to the real-time sharing of medication data and histories with authorized users (e.g., emergency physicians) in a system that:

a. Fully complies with state and federal privacy standards*;*
b. Includes Medicaid and state-employee data;
c. Shares existing medication information from all available sources (plans, pharmacies);
d. Ties to regional and institution EMR systems so that practitioners at the point of care have access to more complete information; and
e. Supports e-prescribing systems and tools.

Recommendation #5

The Commonwealth must address the health information management workforce shortage. There is a need for educating new health information management workers and also the need to educate incumbent healthcare professionals in health information management. This needs to be accomplished by the formation of a separate and coordinate alliance that will concentrate on the health information management growing workforce requirements.

1. Survey availability of trained staff to manage the process of an interoperable electronic health record across Virginia;
2. Identity the career fields needing encouragement in the Medical Records and Health Information Technology;
3. Provide a feasibility study on educational system enhancement to address any workforce shortage and eliminate any shortage;
4. Increase educational efforts to teach doctors and nurses on basic informatics.

This report begins with a brief introduction followed by chapters relating to the findings of the Task Force and recommendations. Comments to the Task Force and full reports from Subcommittees are included in the Appendix.

INTRODUCTION

The Electronic Health Record (EHR) is a longitudinal electronic record of patient health information generated by one or more encounters in any care delivery setting. Included in this information are patient demographics, progress notes, problem lists, vital signs, past medical history, review of systems, immunizations, laboratory data, radiology reports, and other components of medical records. The EHR automates and streamlines the clinician's workflow. The EHR has the ability to generate a complete record of a clinical patient encounter, as well as supporting other care-related activities directly or indirectly via interface - including evidence-based decision support, quality management, and outcomes reporting.[3]

The strategic building blocks underpinning Virginia's ED 6 initiative started five years ago when the Institute of Medicine released a landmark report, "To Err Is Human," which shattered widely held perceptions about the safety of health care in the United States. The report found that a variety of preventable adverse events contribute to more than one million injuries and up to 98,000 hospital deaths a year.

In April of 2004, responding to public polls calling for organizational improvements in health care, President Bush's administration released a 10-year plan to transform the delivery of health care by building a new health information infrastructure, including electronic health records. A new office in HHS, the National Coordinator for Health Information Technology, headed by David Brailer, M.D., Ph.D, was established; a Leadership Panel appointed; private sector certification for health information technology products introduced; and a private sector consortium was created to plan and develop a new nationwide network for health information. In addition, Medicare created an Internet portal allowing beneficiaries to access their personal Medicare information. New granting opportunities were also announced to help develop information exchanges. The Veterans Administration, collaboratively with Department of Defense, was instructed to provide joint recommendations on the knowledge and technology transfers to be gained from successful exchange initiatives, the adoption of common standards and terminologies to promote more effective and rapid development of health technologies, and the development of telehealth technologies to improve care in rural and remote areas.

"President Bush has identified health information technology as one of the most important technology areas for America's future," Dr. Brailer said. "This report lays down a foundation for achieving this national priority and moves us from a period of discussion into a period of rapid action."[4]

Congressional action is just as robust: Congress is examining the following key bills: S. 1418 (Wired for Health Care Quality Act – Frist/Clinton/Enzi/Kennedy); S. 354 (Help Efficient, Accessible, Low-Cost Timely Healthcare Act of 2005); H.R. 3205 (House Energy and Commerce Patient Safety and Quality Improvement Act of 2005); H.R. 1200

(American Health Security Act of 2005); and the Patient Empowerment and Education Act of 2005.

The National Governors Association adopted Policy Position HHS-29 at their 2005 Annual Meeting. The policy states: "By failing to effectively use information technology, the U.S. health care industry remains a system that encourages inefficiency…. As a result, administrative costs account for 31 percent of the nation's total health care spending. … State and federal Medicaid and Medicare budgets are surging, and the basic competitiveness of U.S. business is jeopardized because the health care system is inefficient and costly. Industry experts recognize the need for national standards for electronic health records (EHR)." They went on to recommend the establishment of the National Health Care Innovations Program to support the implementation of 10 to 15 state-led, large-scale demonstrations in health care reform over a 3-to-5-year period.[5]

States serve a valuable role as laboratories for national solutions. The Task Force undertook to ascertain what electronic health information activities are underway in other states and convened a conference with the Association of State and Territory Health Officials (ASTHO) to discuss this issue. Nine states (Indiana, New York, participated in the call with four of those states being recipients of an Agency for Healthcare Research and Quality (AHRQ) eHealth grants. The following themes emerged:

1. The key drivers of eHealth initiatives are the desire to curb rising healthcare costs through reduction of medical errors and to reduce provider inefficiencies due to lack of data to support patient care.
2. Substantial struggles with defining the role of the state in fostering the development of eHealth initiatives were reported. However, all states formed governance bodies composed of representatives from all stakeholders.
3. States recognized the need for public health involvement. Those states that did not receive some sort of federal grant assistance are building on their existing public health reporting infrastructure, such as immunization registries, to create more robust health information systems.
4. Financing and funding to support ongoing operations is a challenge. Federal grants and contracts serve as the major revenue source for upfront funding.

Ultimately, the goal of the Task Force is to present Virginia's experience in health care delivery transformation against the backdrop of national mandates and other state's experiences to determine how to facilitate adoption that will promote higher quality, lower costs, and increased patient and clinician satisfaction and to increase the number of people engaged in self management, which is important for outcome improvement.

Digitizing our health system is the method, not the end**.**

Section 1

MOTIVATION FOR EHR ADOPTION

Across Virginia providers are working to foster collaboration among stakeholders and to better serve patient and provider needs. "Motivations," listed below, are presented more as an analytic construct rather than real world experience, because no adoption can be in isolation and not part of a system of reforming relationships. However, the listing hopefully serves as "control knobs" to define the dimensions of the Virginia experience. These few examples are far from exhaustive, but they are representative and are included to give a flavor of the work across the Commonwealth. "Adoption" for purposes of billing and cost control are attendant to all the items.

The need to reduce medical errors

1. HCA Richmond Hospitals have a robot filling prescriptions for their pharmacies four times faster than a human, and it virtually never makes a mistake. "Regis Fill Bin," as the robot's been dubbed by hospital staff, is a welcome relief to pharmacists, allowing them more time monitoring drug interactions, reviewing patients' therapy and working on other intervention efforts. The effort has reduced medication errors and has a 99.97 percent accuracy rate.

2. Carilion Health System, a large multi-hospital system in Southwest, Virginia, was one of the first delivery systems in the United States to fully implement a comprehensive, wireless Medication Administration System. Carilion reports this system provides a "real-time electronic safety net" for hospitalized patients. Every patient, caregiver, and medication is identified with an electronic bar code while the process of administrating medications and documenting the outcomes is completed automated. An automated drug dispensing system, connected via a wireless communications network and using finger print identification technology, controls access to medications and means that each step in the medication process is supported and verified for accuracy. This system has dramatically improved patient safety. On average, Carilion reports over two million doses are issued annually with this network and this highly sophisticated system prevents more than 500 serious mistakes each month while providing a rich resource of data about the medication process.

The need to improve quality of care

1. Sentara Norfolk General Hospital was the first hospital in the nation to use eICU technology, which allows doctors and critical care nurses to make "virtual" rounds of patients in the Intensive Care Unit. They can monitor patient conditions, check vital signs and test results and communicate with staff, patients or family members from a remote location. This technology does not replace the bedside visit; rather it complements it, resulting in shorter hospital stays and better patient outcomes. The technology is now available in six Sentara

Healthcare hospitals in the region and since its inception in 2000, nearly 300 lives have been saved using this technology.

2. Inova Health System and HCA hospitals implemented eICU technology in their hospitals as well. With the extra pairs of eyes working 24/7, Inova's bedside team was able to react quickly such as when the eICU team noticed a patient in another room was trying to remove a central line that could have worsened his condition

The need to improve clinical processes or workflow efficiency in the same system:

1. Loudoun Medical Group reported that their electronic medical record implementation occurred two years ago across fifty locations through a wide area network. They reported their first priority was to eliminate charts and as much paper processing as possible. A decision was made to implement the entire medical records system by location before moving onto another location. A complete EHR system included an interface with billing and accounts receivable. Their experience has taught them that once a system is selected, it is essential to engage physicians in the planning process. Therefore, physicians sat on the selection steering committee. The main challenges for the Loudoun Medical Group included trying to choose from so many different products, implementation and training.

2. Carilion Health Systems reported that its hospitals' emergency departments were linked via a single Electronic Medical Record. Consequently, their physicians have access to every emergency room visit in any Carilion hospital. As a result, the status of each patient in every location is constantly known and monitored as to movement within the care process, including the status of all tests, treatments and results. In addition, this electronic medical record has created an environment of completely paperless and radiological film less operation. Physicians are able to view orders, x-rays and complete charts in any treatment room. These emergency department records are also electronically sent to physician offices electronic records and our Physician Portal. The portal combines all Carilion hospital, physician office and Emergency Room charts into a single physician view. Therefore, physicians have information helping them manage care and ambulance traffic across the region as well as identifying patients who attempt to defraud emergency rooms seeking unwarranted prescriptions. Over 650,000 patients have their complete records online linking some 2500 physicians and caregivers. 1.2 million patient appointments are stored in the computer and a patient's record is accessible in any of Carilion's care locations. More than 5000 patient prescriptions are electronically transferred daily to 100 regional pharmacies. Meanwhile, physicians can roam between their offices, the hospital, and their homes viewing medical records on their cellular telephones.

3. University of Virginia Health System (UVAHS) was a pioneer in utilizing computerized physician order entry for inpatient care 19 years ago. UVAHS has documented the many quality and process benefits that physician order entry has yielded and is now implementing automated order entry in its outpatient clinics. Consequently, a best practice identified at UVAHS is the training of future physicians

on the use of an automated clinical system and the benefits for quality patient care that an electronic record produces. Challenges include scheduling busy physicians and other care providers to be part of the on going planning for the electronic patient record.

4. Teaching physicians the benefits of EHR is also a best practice identified in the Bon Secours Health System. Currently, physicians are being provided remote access to the Bon Secours network through virtual private networks (VPNs). Medical information is also available online at all Bon Secours campuses. This includes physician reports, emergency department records, nursing assessments, vital signs, pharmacy orders, and demographic information in textual form and images of cardiology tests and physician orders. Medication administration in textual form is currently being implemented as are radiology images. The images are very legible via the Web but are not quite "diagnostic quality." A major challenge reported is to keep all the data elements properly indexed to the right patient which is key to interoperability. A common vendor solution may provide greater interoperability but less functionality versus a niche technology solution which provides maximum functionality but little or no interoperability.

5. HCA uses a common EHR vendor to provide interoperability between HCA's nationwide facilities and campuses. Because HCA wanted interoperability, they gave up "best of breed" technology solutions. At this time, HCA does not have a true end-to-end electronic medical record system in any of its hospitals and is just beginning to implement an electronic physician order entry system. Physicians have remote access to the HCA network through virtual private networks (VPNs) using security fobs.

The need for decision support tools in supply management and analytical service

1. Owens & Minor, a medical supply company headquartered in Richmond, Virginia, enables healthcare systems to consolidate medical supply purchasing history across disparate computer networks, creating clear visibility of purchasing patterns and product movement system wide. With this information, the healthcare customer can make informed decisions about product standardization, contract compliance and other key supply chain initiatives. The company also provides a comprehensive program in healthcare supply management helping hospitals to streamline the supply chain to their clinical suite through timely business information, product management and process improvement – whether for the main operating room, labor & delivery or outpatient surgery.

The need to improve clinical processes or workflow efficiency between systems:

1. CarePort: is a Public/Private Partnership through the Virginia Department of Health (VDH). VDH and Carilion Health System serve a common patient population with a frequent need to share records. The goal of the public/private pilot partnership

is to promote continuity of care, minimize the duplication of testing and to make access to patient information more efficient for those with a need to know. The information that can be accessed includes the following: hospital discharge summary, lab reports, imaging, telemetry, surgery reports, and emergency room reports. Access is granted only after a patient is informed and has signed a specific consent. Only previously identified "shared" patient information can be viewed. The initial pilot is demonstrating both the cost improvement and service delivery improvements that EHR implementation is designed to produce.

2. MedVirginia Solution is a limited liability company based in Richmond, Va., organized in 2000 by CenVaNet, a physician-hospital organization representing over 900 physicians and 10 hospitals, and Virginia Urology. It launched a community health information exchange (HIE) that integrates inpatient, outpatient, pharmacy, lab and physician data from independent provider entities into a single, patient-centric, electronic chart. The health information exchange will go active in late fall of 2005.

The need to providing access to patient records at remote locations

1. CareSpark is a Regional Health Information Organization (RHIO) serving 705,000 residents in 17 counties of the "Tri-Cities" Tennessee / Virginia region of the Central Appalachia in the Cumberland Plateau Health District. It was initiated when a broad-based coalition of healthcare providers, insurers, employers and community leaders determined the mission of regional health improvement imposed an overarching need for an efficient system to communicate and share health information and data among providers to enable coordination of care, clinical process and public health improvement. CareSpark was developed through a two-year strategic planning process of needs assessment, research, consensus-building and planning that involved over eighty individuals from more than thirty organizations to assess feasibility, plan for technical and clinical implementation, financial sustainability and assure the effort was in accordance with state and federal regulations concerning privacy, security, and anti-trust. CareSpark is now poised to implement its sustainable business plan to enable interoperability of electronic health records to its local health care market of 1,200 physicians and 18 hospitals.

The need to improve clinical data capture

1. Virginia Department of Health has a childhood vaccine tracking and decision support system that contains all immunizations given in public health clinics. The Department of Health has initiated a statewide immunization registry, which will be tested in five pilot sites before being rolled out statewide. This system will allow all providers, both private and public, to share immunization records so more children can be immunized on time and unnecessary immunizations can be avoided.

2. A joint project between the Virginia Department of Health and Johns Hopkins Advanced Physics Laboratory and the Defense Advanced Research Projects Agency would make Virginia able to respond quickly to a bioterrorism event and save lives.

The Commonwealth is actively collecting data from almost 30 emergency rooms, mostly in Northern Virginia and Tidewater, and analyzing the data daily for suspicious patterns of disease. Data is shared with DC and Maryland so any pattern in the National Capitol Region can be detected. As additional data is added to this system, such as drug store sales and school attendance, the system (named ESSENCE II) should become more sensitive to unusual events.

3. Carilion routinely analyzes over 250 million electronic forms for research and care improvement activities for the purpose of community based medicine practices.

The need to facilitate clinical decision support for specific cohort populations

1. In Virginia, six separate state agencies play significant roles in long-term support for older adults and adults with physical disabilities. In addition, at the local level, 25 Area Agencies on Aging, 35 health departments, 120 county or city social services departments, 40 local community mental health boards and 16 Centers for Independent Living also provide services to this population. Therefore, in order to deliver services in an efficient manner and to avoid costly duplication of efforts, Virginia is building a Community-based Coordinated Services System. At the core of this system is the Uniform Assessment Instrument. The aforementioned organizations agreed upon an assessment instrument that contains all relevant patient information necessary for proper program placement. This instrument will become a web-based application this fall and therefore, in effect, will become a type of electronic health record for senior services. Virginia currently has a system, known as SeniorNavigator, which is a comprehensive database of senior services. It is available to patients and their families as a means to understand the community resources available to them. The Uniform Assessment Instrument will become incorporated with the SeniorNavigator system to achieve a Community-based Coordinated Services System. This system will qualify program eligibility, ensure service receipt, track outcomes and identify service gaps. It will eliminate the necessity for the patient to access different service providers and have multiple eligibility determinations. This effort is governed by the Statewide Advisory Council for the Integration of Community-based Services that are chaired by the Secretary of Health and Human Resources. There are currently three pilot projects underway – Peninsula Area, Greater Richmond Area and the Shenandoah Area.

2. VISTA is a public domain computerized records management system that is used by the Veterans Affairs hospitals, including ten VA facilities serving Virginia. The system was demonstrated through a live connection to a hospital, to the Task Force by Katherine Gianola, M.D, from the Veterans Administration. The physician can document and include in the system a patient's vital signs within particular timeframes, inter-facility consults, medications dispensed and the results of laboratory tests. In addition, the system creates a variety of alerts; one such alert notifies physicians when there is a patient allergy, for example. The system can be used to order medications using an internal pharmacy. These orders are automatically sent to the internal pharmacies or lab. The system can be accessed from any remote

location via VISTAweb. Positive impacts as a result of system implementation include: enhanced patient safety, order checks and alerts, legibility, accountability and timeliness, concurrent provider chart use, better continuity of patient care, decreased verbal order usage, enhanced provider satisfaction and improved medical record documentation. Lessons learned and tools for successful implementation include: a staged deployment, use a Graphical User Interface (GUI) format, seek out super-users and champions, encourage clinical application coordination (nurses and pharmacies), implement a very strong security program and have standing committees in place to address issues as they arise. Finally, it is essential to develop a backup system and have contingencies in place so that patient care is not compromised.

The need to meet the requirements of legal, regulatory, or accreditation standards

1. A clinical asset tracking system, based on barcode technology, enables hospitals to track and manage implant tissue to help them comply with strict new and revised government and JCAHO regulations. This tool increases the speed, accuracy and organization of data collection; alerts Operating Room staff to implant expirations; and quickly identifies online the patients who received specific implants to support the hospital's patient safety initiatives.

2. New proposed regulations that support adoption of e-prescribing and electronic health records are announced daily.

Section 2

NATIONAL AND OTHER STATES EHR ADOPTION

Since the Institute of Medicine's report, hospitals and providers across the country have launched programs to prevent errors and improve safety. The Joint Commission on Accreditation of Hospitals, the national organization that accredits hospitals, has identified and incorporated new "safe practices" into its inspections and requires hospitals to disclose errors to patients. And patient safety has emerged as a discreet and worthy

In order to begin to ascertain what electronic health information activities are underway in other states, the Task Force convened a conference call with the Association of State and Territory Health Officials (ASTHO) to discuss this issue. Nine states participated in the call with four of those states being recipients of an Agency for Healthcare Research and Quality (AHRQ) eHealth grants.

There were several states represented. They reported the following including Indiana, Minnesota, Rhode Island, Utah, Kentucky, New Hampshire, Pennsylvania, Virginia and Wisconsin:

1. Indiana – 2 regional health information organizations (RHIOs) have been formed.
2. Minnesota – There is an e-Health Steering Committee in place. The priority areas in which to share information are medications, communicable diseases, and laboratory results.
3. Rhode Island – The AHRQ project is trying to establish interoperability across the state through the use of a master patient index.
4. Utah – the Utah Health Information Network is in place. One hundred percent of hospitals use this for claims while 90% of physician use the network for claims.
5. New Hampshire – Community health centers use the same EHR; partnering with Medicaid to look at data sharing.
6. Wisconsin – An estimated 35% of practices have an EHR.

The following themes emerged:

1. The key drivers of eHealth initiatives are the desire to curb rising healthcare costs through reduction of medical errors and to reduce provider inefficiencies due to lack of data to support patient care.
2. Substantial struggles with defining the role of the state in fostering the development of eHealth initiatives were reported. However, all states formed governance bodies composed of representatives from all stakeholders.
3. States recognized the need for public health involvement. Those states that did not receive some sort of federal grant assistance are building on their existing public health reporting infrastructure, such as immunization registries, to create more robust health information systems.
4. Financing and funding to support ongoing operations is a challenge. Federal grants and contracts serve as the major revenue source for upfront funding.

Case Study: Indiana

Indiana formed a study committee based on the Institute of Medicine's Medical Error Report. As a result of this work, legislation was recently passed to establish a Medical Informatics Commission with the goal of implementing EHRs statewide. Indiana has two functioning RHIOs in the state. The Union Health Information Exchange in Indianapolis began over a decade ago as the Indianapolis Network for Patient Care, a project of the Regenstrief Institute, a private, not-for-profit research leader in medical informatics and health services research. Some of the start-up funding came from Biocrossroads, a market/economic development organization. This now mature RHIO has never looked at the federal government for financial support. The ongoing support comes from payment for services from those who benefit from using electronic transfer of information over costlier paper-based processes. The RHIO receives data electronically and delivers it to data consumers such as healthcare providers. Data is currently delivered in a variety of ways, but through the use of electronic methods and through economies of scale, the RHIO can deliver them more cost effectively. The current AHRQ grant is being used to fund

the start-up of the second RHIO in the state. This RHIO has representatives from public health and the Medicaid program on its governance board. As this RHIO also moves to a business model for funding, similar to the Indianapolis RHIO, the Department of Health, as a user, will provide financial support to the project.

Detailed information about EHR in the states participating in the ASTHO conference call can be found in Appendix 1.

Another source of information about other states comes from the eHealth Initiative Foundation's second annual survey of state, regional and community-based health information exchange initiatives. Health information exchange is defined as the mobilization of health information electronically across organizations within a region or community. The number of respondents tripled from the previous year with sixty-five organizations or 60 percent of the respondents identifying themselves as "advanced" or well underway with implementation. The survey findings pointed out that without broad adoption of national standards, the creation of innovative capital funding sources to support start-up costs, and the alignment of incentives to support the mobilization of information through eHealth to support patient care, the efforts to expand interoperability may move at a slow pace. The analysis of this survey produced the following key findings:

1. Health information exchange activity is on the rise. The reported number of exchange organizations considered fully operational increased from 9 in 2004 to 25 in 2005.
2. The key driver moving states, regions and communities toward health information exchange is provider inefficiency due to lack of data to support patient care.
3. Health information exchange efforts recognize the importance of privacy and security.
4. Health information exchange efforts are maturing: organization and governance structures are shifting towards multi-stakeholder models with the involvement of providers, purchasers and payers.
5. Advancements in functionality to support improvements in quality and safety are evident.
6. Health information exchange efforts are delivering more information and increasingly using standards for data delivery.
7. Securing funding to support start-up costs and ongoing operations is still recognized as the greatest challenge for all efforts.
8. Funding sources for both upfront and ongoing operational costs still rely heavily upon government funds but alternative funding sources for ongoing sustainability are beginning to emerge. These include payments from hospitals, physician practices, public health, laboratories, payers, and purchasers.

Case Study: New York

In October of 2004, the United Hospital Fund engaged a broad range of healthcare leaders across the state to determine what steps could be taken to

improve healthcare in New York through broader adoption of health information technology and health information exchange. The eHealth Initiative Foundation is supporting the identification of specific strategies to estimate health information technology value and to identify business models to sustain technology adoption and use. This effort builds on the New York State Analysis conducted by the Center for Information Technology Leadership with support from the United Hospital Fund, which indicates that the net benefit associated with "level four" interoperability within New York over ten years is $12.4 billion.

The New York State Department of Health (NYSDOH) is also focusing on opportunities for technology policy coordination. The NYS HIT Working Group has been established as a vehicle to communicate and coordinate across a wide variety of state agency components – Medicaid, public health, professional licensure, technology procurement, and capital financing. Several funding opportunities that directly or indirectly relate to health information technology are in process:

1. HEAL-NY funds were approved in the state's 2005 budget, and additional federal waiver funds may soon be available.
2. A request for proposal for disease management demonstration projects has been published, and the budget also established a new "pay for performance" demonstration program.
3. Additional funds were appropriated to support physician health information technology adoption. NYSDOH is developing a coordinated approach to guide both the general purposes and specific criteria relating to these funds. It is also exploring opportunities to promote broad adoption of electronic prescribing as a means to improve quality and safety, while also maintaining the state's stringent regulatory provisions relating to controlled substances.

The Greater New York Hospital Association (GNYHA) recently published a report that profiles 10 RHIOs covering almost every region of the state. A number of initiatives were highlighted including the Taconic Health Information Network and Community that is focusing on physician electronic medical record adoption and the transmission of prescribing and performance measurement information through a web-based data portal. Also mentioned were the New York Clinical Information Exchange that is being organized to facilitate access to patient information at the point of care in emergency rooms, the Queens Health Connection Card Program that is a personal health record for disease management activities, and the upstate New York Professional Healthcare Information and Education Demonstration Project.

Section 3

VIRGINIA'S EHR ADOPTION IN PHYSICIAN OFFICES

The Task Force drew from primary information through surveys the EHR applications and functions being implemented or planned in Virginia's private medical offices, in hospitals, long term care facilities and safety net community services.

An overview of the current status of EHR in Private Medical Practices in Virginia shows a wide variance of implementation in the Commonwealth. Current EHR adoption survey information was garnered from three different sources.

1. Virginia Department of Health Survey of private medical offices: In September of 2005, 132 physicians were telephoned by VDH. Of the 126 respondents, 33 percent currently state they have an EHR in use. Physicians in a hospital setting were more likely than those in a large group practice and a small group practice to have an EHR. Physicians with an EHR system rated enhanced efficiency as the most important benefit from its use. Eighteen percent of the respondents in the Health Department Survey who do not currently have an EHR stated that they planned to implement an EHR system in the next two years.[6]

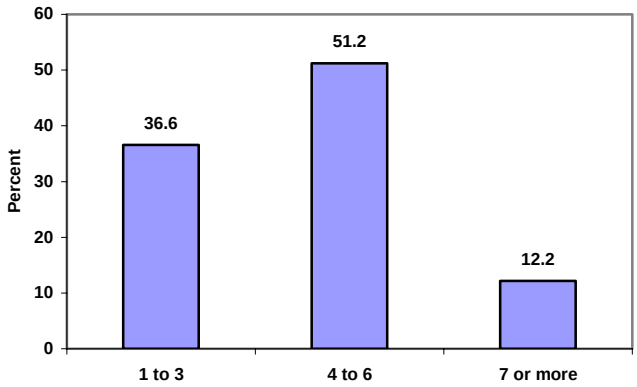
   Call Disposition**:** The results are based upon 159 surveys completed to date.

   - 17% (27 of 159) were wrong numbers
   - 5% (6 of 132 valid phone numbers) were refusals
   - 95% (126 of 132 valid phone numbers) were completed

   Q2. Does your office have any form of electronic health record system in use today?

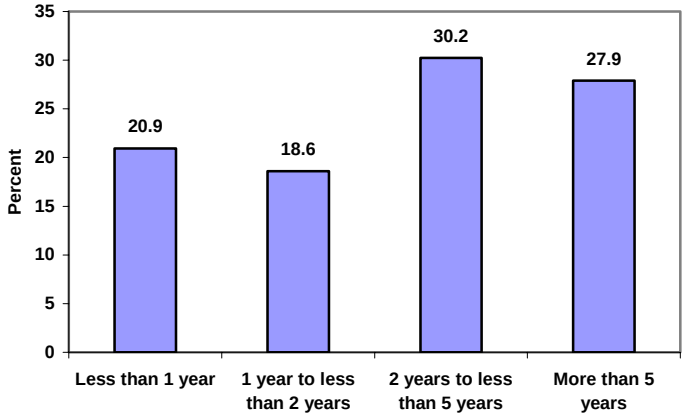
   - Thirty-three percent of respondents (42 of 126) said that they currently have an EHR in use today.
     - 12% (15 of 126) reported 3 components or fewer (of 11 total components)
     - 17% (21 of 126) reported 4 to 6 components
     - 4% (5 of 126) reported 7 or more components

   - Of those who said they had an EHR, 36.6% utilized 3 components or fewer.

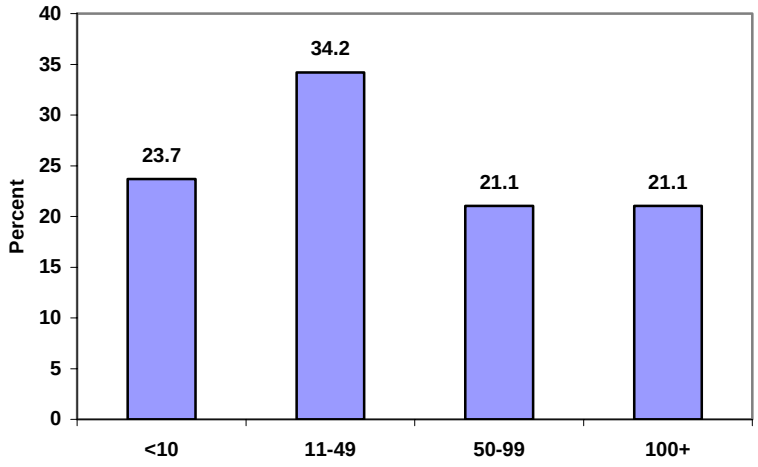


- Those in a hospital setting (60%) were more likely than those in large group practice (3 or more doctors; 33%) and small group practice (2 or less doctors; 17%) to have and EHR.

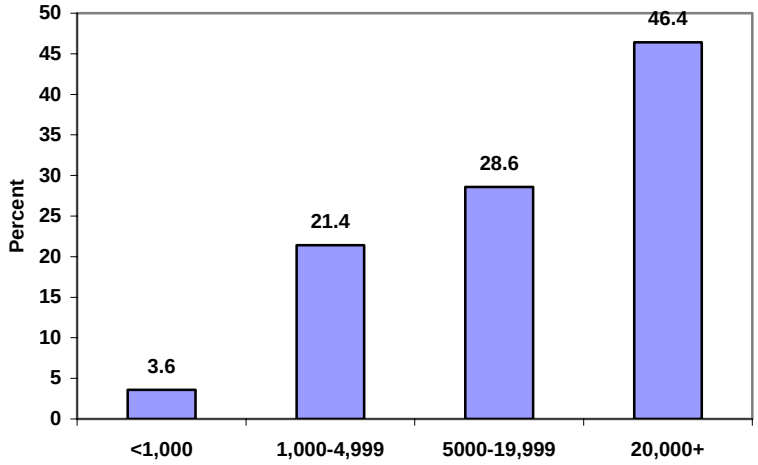
Q2a. How many years have you had your current electronic health record system**?**



Q2b. On average, how may staff currently use the electronic health record system?



Q2c. On average, how many patient records are currently in your system?



Q3. Please tell me whether you currently use this feature of an EHR:

Electronic Health Record Feature	Percent Currently Using this Feature
Electronic receipt of lab results	62%
Direct entry of progress notes	57%
Access to decision support such as online reference material	56%
View images	55%
Electronic lab ordering	50%

Alerts to drug interactions	40%
Electronic image ordering	38%
Records can be transmitted or received from other offices/systems	38%
Electronic Prescriptions	24%
Alerts to deviations from patient care protocol	14%
Patients can access part or all of the record	5%

Q4. Are you currently experiencing any problems with your EHR system?

Only 21% (9 of 42) of those with an EHR reported problems.

Q5. What are the benefits that you have experienced since using an EHR system?

Benefit	Pct
Enhances efficiency	89%
Improved communication	47%
Improved accuracy/reduction of errors	47%
Improved patient processing	45%
Cost savings	34%
Improved patient safety	29%
Revenue enhancements	18%
Competitive advantage	5%

<u>For those who do not currently have an EHR:</u>

Q6. Do you plan on implementing an electronic health record system in the next 2 years?

Of those who do NOT have a current EHR, 18% (14 of 79) plan to in the next 2 years, 54% (43 of 79) were not planning on implementation, and 28% (22 of 79) were not sure.

Q7. What is the biggest barrier to adopting an electronic health record system?

Cost is mentioned by 33% (27 of 81) respondents.

Other barriers mentioned included:

10% Small office, no need for EHR (8 of 81)
9% No interest, like existing system, don't see benefits (7 of 81)
7% Training/Technology issues (6 of 81)
5% Too many paper records to convert (4 of 81)
4% Too disruptive (3 of 81)
4% Too many to choose from (3 of 81)

2. The Virginia Academy of Family Physician Survey of physician offices: VAHP conducted a survey in the spring of 2005 of their membership. The appendix contains the survey instrument. The Virginia Academy of Family Physicians provided permission to share the responses from questions numbered 6 & 7 to the Task Force. The results were as follows:

Total Number of Surveys Mailed	1,591	Percent
Total Number of Surveys Received	499	31%
Do you have an EHR in your office?	Yes – 145 No – 350 No Response – 4	29% 70% 1%
If you don't have an EHR do you plan to implement one in the next two years?	Yes – 168 No – 152 No Response – 30	48% 43% 9%

3. The Medical Group Management Association Survey of physician offices: MGMA, a national membership association providing information, networking and professional development for the individuals who manage and lead medical group practices, surveyed more than 3,000 medical group practices across their membership to assess current use of information technology and plans for adopting electronic health records, and to understand the costs and benefits of EHRs and the barriers to and facilitators of adoption. The work was funded by a grant from the Agency for Health Research and Quality (AHRQ). Of the ~120 responses from practices that responded to the survey in Virginia, the respondents included 56 primary care practices (note: the survey excludes OB/Gyn, pediatrics and geriatrics; includes general internal medicine, family practice, and multispecialty groups that provide primary care).

Virginia, Table 2a: Distribution of Practices by Type of Health Record for All Medical Groups

	Count	Percent
Paper medical records filed in record cabinet	93	75.0%
A scanned image filed electronically using DIMS	4	3.2%
A dictation and transcription system combined with a DIMS	8	6.5%
EHR storing information in a relational database	16	12.9%
Other	3	2.4%
Total	124	100.0%

Virginia, Table 2b: Distribution of Practices by Degree of Implementation of EHR for All Medical Groups

	Count	Percent
Fully implemented for all physicians and locations	15	12.2%
Implementation in process	16	13.0%
Implementation planned in next 12 months	25	20.3%
Implementation planned in next 13 to 24 months	27	22.0%
Not implemented and no planned implementation in 24 months	40	32.5%
Total	123	100.0%

The authors note: "Results suggest that adoption of electronic health records (EHRs) is progressing slowly, at least in smaller practices, although a number of group practices plan to implement an EHR within the next two years. Moreover, the process of choosing and implementing an EHR appears to be more complex and varied than we expected. This suggests a need for greater support for practices, particularly smaller ones, in this quest if the benefits expected from EHRs are to be realized."[7]

4. Anecdotal Information from informal survey: The Task Force conducted an informal review of physicians in the Richmond area with the assistance of the Richmond Academy of Medicine. The responses were varied and reinforce the challenges and opportunities of electronic health record adoption. The following two excerpts received July 2005 illustrate well the polarization in the physician practice:

1) ”My practice has looked at EHR off and on for some time. We have not changed to this system for a number of reasons, the most obvious of which is cost. The most recent system I priced was $7000 per physician per year. These systems are widely varying in capability, utility, and ease of use and are far from being standardized. Converting current charts to EHR format would be an overwhelming project for most physicians' offices. A physician just starting practice (who can, of course, least afford it) would have the greatest ease in setting up this kind of record system in his/her office. For those who have been in practice even a few years, the conversion would likely be very costly and disruptive. If physicians are to be encouraged or expected to use EHR systems, they will absolutely need serious help, financial and otherwise, in doing so.”

2) “I'm responding to the request you forwarded through RAM regarding use of electronic medical records. I'm a pathologist with primarily a hospital based practice so my answers may not be too useful. We have been totally electronic for approximately 15 years and it would be unthinkable to go back to manual records.”

Given that physicians in small practices account for 88 percent of all outpatient visits and four-fifths of physicians work in small practices, this group represents a sizable adoption gap. [8]

Section 4

VIRGINIA EHR ADOPTION IN INSTITUTIONS

The Task Force defined institutions broadly to include hospitals and health systems, long term care providers, health plans (both in terms of their own EHR/EHR initiatives and incentives provided for others) and the public mental health facilities. The members also focused on the degree of interoperability among health care institution EHR/EHR systems, where interoperability was defined as “the ability of different information technology systems and software applications to communicate, to exchange data accurately, effectively and consistently, and to use the information that has been exchanged." [9]

Drawing from recent national surveys and recent state efforts, the subcommittee collected and analyzed a variety of information about the current stage of EHR/EHR development among health care institutions, what barriers existed and anticipated progress. Current results for three of the major health care facility categories follow. The health plan picture is incomplete, but more information from a national survey of health plans will be available later this year and will be submitted to the Task Force at that time.

The subcommittee opted to defer examination of public mental health system issues.

1. **Hospitals and Health Systems**: Hospital adoption of information technology has been promoted as saving time, human and financial resources and patient lives. To understand the rate and issues in adopting information technologies (IT) - such as electronic health records (EHR) and computerized physician order entry systems (CPOE), as well as connectivity with others in the health care community and barriers to IT adoption – fifty-three Virginia hospitals and health systems completed a recent American Hospital Association survey.

Responding organizations represent slightly more than three-quarters of the Virginia hospital market. VHHA analyzed the Virginia responses according to hospital size and system affiliation pursuant to subcommittee queries. Analysis of the results is provided below and more detail is included in the Appendix for Subcommittee #3.

Sample

Two separate analyses were done. Sample A: Hospitals were separated into 3 groups based on revenues. Group 1 (N=7) has revenues over 300 million dollars. Group 2 (N=19) has revenues between 100 million and 300 million. Group 3 (N=27) has revenues less than 100 million. Together the hospitals represent 76% of net revenue for 2003 (EPICS). Sample B: Hospitals were grouped based on their affiliation with a multi-hospital state or national health system. There were 41 hospitals assigned to the system group and 11 hospitals assigned to the non-system group. One submission of data was excluded because upon further research it was found not to admit acute care patients.

Findings

Information technology appears to be well accepted and used in all non-clinical areas. Patient scheduling systems lag behind other systems but are still widely used in Virginia's facilities. This finding is consistent regardless of grouping by revenue or system affiliation.

The clinical side of the hospital has not yet uniformly adopted IT systems, but only one hospital out of the 53 is not actively considering, testing or using IT for clinical purposes. This facility is a long-term care, skilled nursing facility. This facility was excluded from system/non-system analysis.

Interestingly, few organizations are in a testing phase with any one health information technology. For the most part they have either partially or fully adopted the technology or are considering adopting it in three years.

Bar coding

The largest hospitals are the furthest along in implementing bar coding for patient identification. Five of the seven hospitals in this group have fully implemented bar coding for this purpose and a sixth hospital has partially implemented the system. The seventh hospital expects to have it implemented in three years.

About half the hospitals in Group 2 have fully implemented bar coding for patient identification. One hospital in this group currently has no plans to implement the

technology, but the others expect to have it in place in three years. In Group 3, three facilities have no plans to implement. The other 24 hospitals have either implemented it or are planning to implement bar coding systems in three years.

Today, bar coding is most likely to be used to manage specimens in hospital laboratories. Going forward, it will become more commonplace in pharmaceutical tracking and administration. The area least likely to see this technology fully implemented is supply chain management. This is unusual given the uniform use of bar coding by material management vendors.

Adoption of bar coding is further along in non-system hospitals for purposes of identifying lab specimens, tracking pharmaceuticals, and supply chain management (materials management functions). System hospitals have been more successful in implementing bar coding for patient identification and pharmaceutical administration (patient care functions). The non-system hospitals are more likely to consider not adopting bar coding for a specific purpose than system hospitals.

Other information technologies

Telemedicine and physician use of personal data assistants have been adopted by most large and medium sized hospitals. Small hospitals are likely to adopt telemedicine first followed by use of a personal data assistant. Radio frequency identification is being used by only a small number of medium size hospitals. Group 1 and Group 3 have not adopted it at all.

System hospitals expect to have telemedicine and physician personal data assistants available in 100% of the facilities within three years. None of the three technologies will be implemented by 100% of the nonsystem hospitals.

Hospital adoption of EHR technology appears to stimulate the records being available in other areas of the enterprise. Hospital, emergency department and pharmacy service records are likely to be linked electronically in all hospitals within three years. The Group 1 hospitals have already completed this process. Group 1 hospitals have either implemented electronic health records in the additional patient areas or are in the process of doing so. A small percentage of Group 2 hospitals have no plans to link patient records outside of hospital inpatient, emergency department and pharmacy services.

Hospitals have either completed implementing IT systems to access information about or for patients or are in the process of implementing them. Size appears to influence speed of adoption. Group 1 hospitals are more likely to have fully automated these areas with the exception of patient flow sheets. In the areas of medical records and patient demographics, the hospitals in Group 2 hospitals are close to completing adoption. In the Group 3 hospitals, IT is most likely to be applied to access to medical histories and patient demographics and least likely to link patient care with patient guidelines and pathways.

When the hospitals are grouped by system status, there is no clear picture that affiliation imparts a benefit for adopting information technologies that address access to medical records, medical history, patient flow sheets, patient demographics, clinical guidelines or picture archiving and communications. What is clear is that these modalities are being rapidly adopted by all hospitals.

Order entry of lab, radiology and pharmacy orders:
These systems have been fully adopted by the majority of hospitals. Based on the responses, it is predicted that 100% hospitals in the study group to have them operational in 3 years. Unlike the system hospitals, all non-system hospitals have completed implementing order entry of lab and radiology orders. However, system hospitals will complete implementing order entry pharmacy first.

Results review of consultant, lab, radiology, radiology image and other tests:
Group 1 hospitals have fully implemented automation in these areas. Only in Group 3 are there hospitals that are not planning to have all the report functions implemented in three years.

Non-system hospitals have completed implementing IT systems for results review of lab tests and radiology test and over half of the facilities have completed implementing links to radiology imaging reports. They lag behind the system hospitals in results review technology for consultant reports, radiology images and other studies. This finding is not surprising given that the non-system hospitals have already completed order entry of lab and radiology orders.

Patient support through home-monitoring, self testing, and interactive patient education:
While all the Group 1 and 2 hospitals are expected to have patient support systems up and running in three years, this cannot be said of hospitals in Group 3, as 42% of them have no plans for adopting the patient support systems listed. System affiliation does not appear to enhance the likelihood that a hospital will adopt IT for patient support.

Overall EHR Results
The findings indicate that most components of electronic health records are being rapidly adopted by all hospitals regardless of system ownership. Such records are common now in hospitals, emergency departments, and pharmacies. System membership appears to speed adoption of electronic health records in onsite and offsite clinics, onsite and offsite physician offices and other remote locations.

<u>CPOE</u>
CPOE has received a lot of attention in the lay and professional literature about its contribution to patient safety. Its adoption appears to be lag behind that of electronic medical records. This may indicate that the organizations choose first to automate the care and tracking of inpatient and emergency room care, before turning to transforming

the physician ordering process. The Group 1 hospitals are further along in CPOE adoption. For the most part, Group 2 and 3 hospitals are postponing adopting these systems for 3 years.

Non-system hospitals appear to focus their efforts to implement CPOE in areas of pharmacy, lab and radiology ordering. This is consistent with the approach to bar coding described earlier. Likewise, access to CPOE to automate and standardize the clinical ordering process to eliminate illegible, incomplete and confusing orders may be occurring more quickly in non-system facilities for inpatient services, emergency department and pharmacy. Over time, however, more systems facilities will adopt the technology, particularly in areas that are not treating inpatients, as the intent to adopt the technology outside inpatient areas is not being considered by some non-system hospitals.

Stand alone systems

Stand alone systems are neither plentiful nor uniformly integrated regardless of size or affiliation. However, system hospitals are more likely to use stand alone information technology and for it to be integrated with other hospital IT systems.

Stand alone systems are most likely to be used in the cardiac catheterization, picture archiving, and communications units. They are also the areas most likely to have integrated their systems with others in the hospital. The smallest hospitals are most likely to have Emergency Department stand alone systems which are integrated with other hospital systems.

Information sharing with entities outside the hospital or health system

Sharing of patient information is not uncommon outside a hospital but size and system affiliation have an effect on the degree to which it occurs and with whom information is shared. Larger hospitals and system hospitals are more likely to have information sharing with outside entities. No hospital shares information with a school clinic. More Group 2 and 3 hospitals share patient data with retail pharmacies than largest facilities do. The lack of sharing among entities that influence types of care or payment may indicate where the options are for developing RHIOs. When grouped by hospital size, the responses indicate private physicians, free standing image centers and long-term care facilities are most likely to have electronic access to hospital patient information**.**

Barriers to implementation of IT

Cost and problems with interoperability are significant barriers for Group 3 hospitals. Three factors that do not hinder any hospital's adopting information technology are: fear of obsolescence, legal barriers, and HIPAA compliance. Over half of all the hospitals consider the ability to support ongoing costs of hardware and software somewhat problematic. The ability to hire well-trained IT staff, while somewhat problematic, is not a significant deterrent for any hospital. A small number of hospitals in each group consider clinician acceptance of technology as a significant barrier to its adoption.

When the hospitals are grouped by system affiliation, the only clear finding is that the order of difficulty that barriers pose is consistent between the two groups. System

hospitals may be more concerned about inability of technology to meet their needs, obsolescence, and acceptance of new technologies by clinical staff. With more than one hospital to manage, the degree of control over these factors may be more problematic for systems.

Summary of Hospital Results

Information technologies are already the norm in non-clinical areas of hospitals and quickly becoming the norm for clinical areas as well. Computerized physician order entry lags behind electronic patient information, but most hospitals have made significant headway in its implementation.

While detail results from other states are not yet available, one general result is that Virginia respondents seem to be well ahead of national norms in terms of the pace and scope of hospital IT, EHR and CPOE system adoption. This may be attributable to the relatively high level of system consolidation within Virginia hospitals.

Most hospitals participate in some local and regional patient data sharing arrangements, but the data sharing arrangements outside the hospital are not plentiful. Two factors, larger size and being part of a multi-hospital system, are associated with the presence of data sharing and doing so with more partners.

2. Health Plans EHR Adoption

In general, health plans are committed to a system that can assure greater patient safety, improved quality and increased efficiency through the increased use of electronic health records. There is a broad understanding by health plans of the benefits and value of broader health care IT development. For example, integrated delivery system-model health plans (e.g., Kaiser and Sentara) are utilizing sophisticated information management systems that will enhance the quality of patient care.

Kaiser

Mr. Ken Hunter, Chief Administrative Officer of Kaiser Mid-Atlantic, provided a thorough review of Kaiser's current Electronic Medical Record (EHR) initiative, including the basic capabilities, resources and timing of Kaiser's multi-year EHR effort – both in this region and nationally. Questions and discussion focused on the mechanisms for linkages with contracting providers, as well as the planned utilities for patients/enrollees. Mr. Hunter also described the emphasis Kaiser was placing on ensuring adequate physician and staff input and training along the path toward full implementation.

The EHR programs of organizations like Kaiser and Sentara – which encompass the health plan and much of the delivery system under a single organizational roof – offer a glimpse of what a fully functional electronic health record might include. For this reason,

a summary of Kaiser's program is incorporated below. Sentara's EHR/EHR initiative is moving along a similar trajectory.

The Kaiser Permanente HealthConnect program integrates the clinical record with appointments, registration and billing to deliver improvements in care delivery and patient satisfaction across the Kaiser Permanente organization.
Key points about KP HealthConnect:

- **Privacy of information** is a top priority in designing and implementing KP HealthConnect. The design of the software ensures that sensitive medical information will be protected.

- **Patient Safety** will be enhanced by KP HealthConnect. Drug interactions and allergic reactions will be prevented by software that knows what medications the patient is taking and checks for conflicts. A patient's medical history will be available to every clinician who is involved in that patient's care - at the same time - even if the doctor is in Georgia, a nurse is in Colorado, and the specialist is in California.

- **Relationships** and **personal care** will be honored and enhanced by KP HealthConnect. One of the key goals of the project is to free up doctors' and nurses' time to spend with patients rather than on paperwork. Our own studies have already found that, for instance, having a computer in the exam room enhances communication between the doctor and patient.

- KP HealthConnect will help us protect the health of members of Kaiser Permanente. **Prevention and wellness** will be facilitated by the system; it will keep track of each patient's preventive care needs - checkups, follow-ups - and remind patients and their doctors when a screening is needed. Doctors, nurses and other caregivers will have the latest research, best information and tools available to care for their patients.

- Members will be able to **access their information online** and take care of medical needs online when KP HealthConnect is fully implemented. The first region to have online patient access will go live in late summer 2005. Kaiser Permanente members will be able to go online to http://www.kp.org to make appointments, view lab test results, refill prescriptions, view prescription histories, and communicate with their doctors and other health care providers online. A Kaiser Permanente patient will be able to see a history of visits with their doctor, even the diagnosis at each visit and recommended next steps for themselves and their self-care.

Anthem

Q-HIP: At Anthem Blue Cross and Blue Shield, a focus on EHR is an important component of its new hospital incentive program. The Quality Insights Hospital

Incentive Program (Q-HIP) promotes use of Computerized Physician Order Entry (CPOE) systems following the Leapfrog guidelines. CPOE is an integral part of a facility EHR and through the stepwise approach in QHIP, Anthem rewards hospitals for developing a business plan and then for successfully moving through the necessary prerequisites culminating in full CPOE implementation.

Anthem Point of Care: Anthem Point of Care puts internet technology to work, providing a Web-based link between Anthem and its network-participating providers. With over 14,000 registered providers, Point of Care has evolved based on valuable input from providers, earning a proven track record. This electronic service helps ease the administrative workload of office staff by allowing them to perform administrative tasks quickly and easily -- including claims status inquiries, referrals and adjustments – saving time and resources.

Point of Care offers a broad array of features, allowing secure access to the following:

- Eligibility and Benefits: Including effective and cancellation dates for prior coverage information, patient's primary care information and benefits such as deductibles and co-payments.

- Claims Status:Includes 24 months of patient history with a line-by-line breakdown of claims processing information and an electronic link to submit adjustment requests.

- Authorization Functions: Provides options to view, create and update specialty care reviews (referrals), inpatient admissions (pre-certification for inpatient stays) and health services reviews (outpatient pre-authorizations). In addition, these features can be used to determine whether an outpatient authorization is recommended based on the procedure and the member's contract.

- eReports: Includes weekly remittance vouchers with the capability to view prior vouchers for the past 24 months and HMO and Point of Service primary care physician reports.

- Links to Maximizing Electronic Commerce: Claim submission, electronic payment, eligibility verification, etc. through Anthem's Web site (www.anthem.com) and the Anthem Professional Forum, a monthly provider newsletter.

Model Provider Office Pilots: Anthem Blue Cross and Blue Shield has partnered with three large hospitals and one large physician practice to pilot an initiative to improve business operations and customer service by creating faster and more accurate claim payments, reducing billing rework and enabling correct copay collection at the time of service for the member. The project focuses on delivering eligibility and benefits information directly into the providers' health information system giving the provider the

opportunity to deliver a cleaner electronic claim submission. In addition, the solution gives the provider the ability to correct claims pre and post submission.

AHIP – America's Health Insurance Plans

America's Health Insurance Plans (AHIP) is putting together a new report on health information technology called "Innovations in Health IT," which will provide a broad overview of recent IT initiatives by health plans, including work related to electronic health records. The report should be available later this fall and will be supplied to the Task Force as soon as it has been released.

3. EHP Adoption in Long Term Care Institutions

Virginia's nursing facilities, like their counterparts around the country, are just now beginning to seriously undertake efforts to implement information technology resources beyond those associated with basic financial management.

The recent growth in clinical IT capabilities for nursing facility providers can be largely attributed to federal requirements that took effect in the late 1990s. Regulations developed as a result of the 1987 Omnibus Budget Reconciliation Act (OBRA '87) require facilities to provide services to meet "the highest practicable physical, medical and psychological well-being" of every resident. The medical regimen must be consistent with the resident's assessment and performed utilizing a uniform instrument known as the Minimum Data Set (MDS). The MDS collects assessment information on each resident's characteristics, activities of daily living, medical needs, mental status, therapy use, and other things involved in comprehensive planning for resident care.

In an attempt to gather basic baseline data related to the recent and planned investment in IT resources by Virginia's nursing facilities, the Virginia Health Care Association (VHCA) conducted a brief survey of its members. A summary of the survey results are included in the Appendix report of Subcommittee 3.

Information provided by responses from VHCA members representing nearly 50% of all Virginia nursing facility beds indicates significant IT implementation activities in a number of clinical areas including care planning, MDS assessment and submission, dietary management, quality assurance and therapy management. However, less than 15% of Virginia nursing facilities are actively using, implementing or testing EHR resources and applications. On an encouraging note, over 60% of nursing facilities responded that they are considering the implementation of EHR resources over the next three years.

The VHCA survey also appears to confirm a long-held concern that for the vast majority of the Commonwealth's nursing facilities, the high cost of IT investment combined with insufficient Medicaid payment, serves as a significant barrier to higher rates of IT adoption.

4. EHP Adoption in Safety Net Institutions

Federally Qualified Community Health Center organizations in Virginia serve the uninsured and underserved populations throughout the state in eighty-eight (88) urban and rural sites. Last year, the centers served over 62,000 uninsured and over 36,000 Medicaid patients with primary health care needs. In 2000, the centers coordinated their information technology efforts to establish a statewide network and operate a practice management system purchased from one vendor. Today, the Community Health Centers have strengthened the network by continuing to take advantage of the changes in connectivity as they develop, particularly in rural areas and by looking for opportunities to be cost-effective. The plan is to develop a state wide integrated electronic health record system that initially operates within the functioning network. Then, to reach out to partners such as hospitals, private practices, laboratories, radiology offices, the Department of Medical Assistance, the Virginia Department of Health and insurance companies to network to their systems and share data.

5. EHP Adoptions in State Agencies

The Commonwealth of Virginia: Through its role as a purchaser of healthcare, can also be an effective tool to assist in the proliferation of EHRs. The following tactics are in preliminary discussion with the Department of Human Resources and the contracted third party administrators.

- Enrollee Education – Various communication vehicles can be used to reach plan subscribers and their dependents on the personal value of eHealth technology implementation.
- Pay for Performance – Increased reimbursements can be afforded to practitioners who are engaged in specified eHealth activities.
- Personal Health Record – A personal health record could be made available to subscribers by third-party administrators. The patient could then share this record with various providers who may need historical medical information for treatment decision-making. It could also be used as a disease management tool for those with chronic conditions who may need to track treatment compliance.

Section 4

BARRIERS TO EHR ADOPTION

In physicians' offices the biggest barriers to adoption, mentioned in detail earlier, are cost (33%); small office, no need for EHR; like existing systems, don't see benefits; training and technology issues; too many paper records to convent; too disruptive; too many to choose from.

Hospitals also cite cost and problems with interoperability are significant barriers. When the hospitals are grouped by system affiliation, the only clear finding is that the order of difficulty that barriers pose is consistent between the two groups. System hospitals may be more concerned about inability of technology to meet their needs, obsolescence, and acceptance of new technologies by clinical staff. With more than one hospital to manage, the degree of control over these factors may be more problematic for systems.

Workforce Capacity:

Another possible barrier to wider adoption of EHR's is the availability of trained staff to manage the process.

The career field of Medical Records and Health Information Technician, which includes Registered Health Information Management Technicians (RHIT) and Clinical Coders is projected to grow 47% in the United States between 2002-2012. This career field is ranked number one (1) of the 76 fastest growing career fields requiring a post secondary education or an Associate Degree by the Bureau of Labor Statistics (BLS.) The growth rate for Medical Records and Health Information Technician in Virginia is projected for the same time period to be 53%.

State and National Trends

United States	Employment		Percent Change
	2002	2012	
Medical records and health information technicians	146,900	215,600	+ 47 %
Virginia	**Employment**		**Percent Change**
	2002	**2012**	
Medical records and health information technicians	3,350	5,130	+ 53 %

Registered Health Information Administrator (RHIA), which requires bachelor's degree or higher, is listed separately by BLS with Medical and Health Services Managers and is

projected to have a +29% growth rate nationally and 30% growth rate for Virginia from 2002 to 2012:

State and National Trends

United States	Employment		Percent Change
	2002	2012	
Medical and health services managers	243,600	314,900	+ 29 %
Virginia	**Employment**		**Percent Change**
	2002	**2012**	
Medical and health services managers	3,350	4,340	+ 30 %

There are only two American Health Information Management Association (AHIMA) accredited Registered Health Information Technician (RHIT) Programs in Virginia: Medical Education Campus, Northern Virginia Community College and Tidewater Community College.

There are presently no Registered Health Information Administration (RHIA) Programs in Virginia. DeVry University is exploring beginning a RHIT to RHIA program in 2006.

The Northern Virginia Health Care Workforce Alliance (NVHCWA) a coalition of private sector, business, government, community, health care and educational leaders formed with the mission to establish a long-term, business-driven, sustainable strategy to address the Northern Virginia health care worker shortage.

The Northern Virginia Health Care Workforce Alliance (NVHCWA) engaged PricewaterhouseCoopers to conduct a study of these issues. They analyzed the scope and impact of the healthcare workforce shortage on Northern Virginia. [10]The results are found in the following report:

The estimated demand for health care workers in 2010 and 2020 is noted on the following chart.

Estimated Demand for Health Care Workers through 2020

Occupation Title	Current Employment	Current Shortage	Current Demand	Projected Health Care Workforce Needs by 2010	Projected Health Care Workforce Needs by 2020	Percent Shortage in Workforce by 2020
Registered nurses (including CRNAs, nurse practitioners, and nurse midwives)	9,082	1,038	10,120	12,056	15,432	41.1%
Nursing aides, orderlies, certified nurse assistants, attendants	3,245	323	3,568	4,251	5,441	40.4%
Medical records and health info technicians	1,337	172	1,509	1,872	2,547	47.5%
Dental assistants	1,110	20	1,130	1,402	1,906	41.8%
Medical and nurse managers	1,054	76	1,130	1,345	1,722	38.8%
Home health aides	1,080	40	1,120	1,334	1,708	36.8%
Dental hygienists	750	30	780	967	1,316	43.0%
Emergency medical technician/ paramedics	864	19	883	1,052	1,347	35.9%
Radiologic technologists and technicians	723	109	832	991	1,268	43.0%
Licensed practical nurses	1,111	390	1,501	1,669	1,919	42.1%
Physical therapists	573	119	692	825	1,056	45.7%
Physical therapist assistants	255	91	346	430	584	56.3%
Occupational therapists	350	67	417	496	635	44.9%
Respiratory therapists	233	39	272	324	415	43.9%
CT scanning technologists	237	24	261	312	399	40.6%
Medical and clinical lab technologists	397	30	427	474	545	27.2%
MRI technologists	172	22	194	232	296	41.9%
Speech language pathologists	122	46	168	200	256	52.3%
Pharmacy technicians	149	16	165	196	251	40.6%
Pharmacists	139	24	163	194	249	44.2%
Surgical technologists	134	21	155	184	236	43.2%
Medical and clinical lab technicians	228	32	260	289	332	31.3%
Phlebotomists	156	15	171	190	218	28.4%
Surgical technicians	33	-	33	40	51	35.3%
Grand Total	23,534	2,763	26,297	31,325	40,129	41.4%
Projected Health Care Workforce Vacancies from Current Employment Estimates				7,791	16,595	

This Pricewaterhouse Coopers study for Northern Virginia found there was an 11% shortage of medical records technicians, which is the equivalent of 172 open positions in the Northern Virginia service area alone. To eliminate the shortage and keep up with anticipated demand and population grown, Northern Virginia will need to add over 363 technicians by 2010 and another 675 by 2020. An average of seven medical records technicians graduated each year from Northern Virginia Community Colleges between 1999 and 2003. At this graduation rate, an addition 49 technicians will be added to the workforce by 2010**,** 314 below market demand estimates just for Northern Virginia**.**

RECOMMENDATIONS:

Rapid progress within hospital and health systems in terms of Electronic Health Records, even relative to other states, was a very positive finding in the Task Force. Also positive is the broad recognition among health plans of the value of wider health care IT development. More modest progress is being made in physician offices.

Less positive, but not at all surprising, was the relatively limited progress made toward ensuring the interoperability of these systems across sectors and regions for the Commonwealth as a whole.

The current federal policy environment, the nature of many Virginia health care markets (e.g., strong regional systems), state level capabilities and initiatives and the results of the Task Force's research all point to an environment that is ripe for collaborative initiatives that build IT bridges that connect disparate components of an electronic health record and advance common quality, health improvement and efficiency goals. Last, but not least, Virginia avoided the "first mover disadvantage" and is in the timely position to advantage the federal direction and learn from other states' experiences.

Achieving the vision of pervasive, real time, electronic health records is a journey of several years. It will require significant degrees of collaboration across providers, health plans and public sectors. But these are important ways the Commonwealth can both speed progress toward the vision and lead by example.

Task Force members are unanimous in their view that both public and private entities must commit to work together on several fronts to advance electronic health records. The strategy behind these recommendations is to connect all providers to the Commonwealth**.**

The Task Force offers five recommendations:

<u>Recommendation # 1</u>
Establish an ongoing statewide Virginia Health Care Innovations Group, with staff support from the Executive Branch.

1. Provide a cross section of stakeholders similar to the present Task Force members; expand to include additional *legislative members and* agency representatives from the Department of Human Resource Management, the Bureau of Insurance and the business community.
2. Responsibilities:
    a. Develop and guide implementation of an electronic health record infrastructure plan for the Commonwealth.
    b. Implement a public health education campaign which will serve to elucidate the methods the electronic health record will redress hidden costs at the same time it improves the health of Virginians and reward early adopters with recognition

c. Participate on the federal level to support the adoption of EHR standards and the track federal legislation to identify funding mechanisms and ongoing sustainability of projects to identify projects that best fit Virginia's goals.
d. Construct financial models to determine best practice projects to be funded or supported by the Commonwealth.
e. Continue the current web site http://www.ehealth.vi.virginia.gov to include pertinent information on the status of the Innovation Group as well as a vehicle for public input.

Recommendation # 2

In the state's role as a purchaser, work closely with the Departments of Human Resource Management and Medical Assistance Services to establish incentives for EHR adoption

3. The Commonwealth, through its role as a purchaser of healthcare, can also be an effective in the proliferation of EHRs.
4. The following efforts are in preliminary discussion with the Departments of Human Resource Management and the contracted third party administrators.
    a. Enrollee Education – Various communication vehicles can be used to reach plan subscribers and their dependents on the personal value of eHealth technology implementation
    b. Pay to Participate – Increased reimbursements can be afforded to practitioners who are engaged in specified eHealth activities.
    c. Personal Health Record – A personal health record could be made available to subscribers by third-party administrators. The patient could then share this record with various providers who may need historical medical information for treatment decision-making. It could also be used as a disease management tool for those with chronic conditions who may need to track treatment compliance.
    d. Commonwealth Leadership: the partnership between the state, its insurer and its enrollees/employees, to include the federal workforce be addressed forthwith, with the charge to move this action forward in a timely manner.

Recommendation # 3

Appropriate state monies to facilitate increased eHealth initiatives. The obvious entry point to spur adoption being reimbursement, the Task Force recommends providing additional funding to develop and/or enhance programs to provide interoperability.

4. Broaden participation in current ESSENCE system among hospital emergency rooms; The Commonwealth has a compelling public health need to be better prepared to monitor and respond to threats such as disease outbreaks and bioterrorism, regardless of origin. The subcommittee recommends expansion of initiatives under the auspices of the Virginia Department of Health. The Virginia Health Department project known as "Essence II" should be studied to identify best practices in sharing information about patients across various health provider

systems. Essence II is a joint project with Johns Hopkins Advanced Physics Lab and the Defense Advanced Research Projects Agency.

5. Conduct financial modeling to demonstrate the cost/benefit of EHR adoption for physician practices prior to grant determinations.
6. Examine funding targeted health care information-exchange organizations, of which "RHIO" is one such organizations,=that can operate in a manner consistent with emerging federal standards and certification processes, such as:
    d) A pilot project that connects all the emergency departments in an area.
    e) Grant and/or loan repayment funds for safety-net providers to participate in regional health information exchange initiatives.
    f) Support of regional efforts in the Commonwealth's various health care markets as part of the overall health information exchange infrastructure development strategy.

Recommendation #4

Identify and support the implementation of a master patient index, (MPI) system that facilitates the secure and accurate linkage of patient medical information that resides in different systems for patients and authorized users.

A MPI system is essential for accurate and reliable health care information exchange and would be an important catalyst to emerging regional health care information exchange collaborations. MPI systems apply logic algorithms to standard demographic information to ensure the accurate assignment of patient information. The MPI system recommended here is neither a state-wide unique patient identifier system, nor a state-wide repository of protected medical information. Rather, the MPI would function more like a secure search engine allowing reliable access to patient medical care information that resides in disparate systems.

The Task Force recommends that the Commonwealth take a leadership role in developing and implementing an MPI system because:

4. Ensuring the privacy and security of patient information is of significant policy interest;
5. It is a core functionality of all interoperability initiatives; and
6. It builds on effort and expertise associated with VDH immunization registry and ESSENCE emergency data systems.

To pilot the tools and test the value of a shared MPI system, the Task Force also recommends that the methodology be applied to the real-time sharing of medication data and histories with authorized users (e.g., emergency physicians) in a system that:

a. Fully complies with state and federal privacy standards*;*
b. Includes Medicaid and state-employee data;
c. Shares existing medication information from all available sources (plans, pharmacies);

d. Ties to regional and institution EMR systems so that practitioners at the point of care have access to more complete information; and
e. Supports e-prescribing systems and tools.

Recommendation #5

The Commonwealth must address the health information management workforce shortage. There is a need for educating new health information management workers and also the need to educate incumbent healthcare professionals in health information management. This needs to be accomplished by the formation of a separate and coordinate alliance that will concentrate on the health information management growing workforce requirements.

1. Survey availability of trained staff to manage the process of an interoperable electronic health record across Virginia
2. Identity the career fields needing encouragement in the Medical Records and Health Information Technology
3. Provide a feasibility study on educational system enhancement to address any workforce shortage and eliminate any shortage.
4. Increase educational efforts to teach doctors and nurses on basic informatics

endnotes

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[1] Estimated $86.6 billion a year in the U.S, according to the Department of Health and Human Services.

[2] In an October 2005 survey by the Markle Foundation, A majority of U.S. consumers surveyed support Internet-based health records if they can be secured to protect patient privacy,. In a nationwide poll of 800 Americans, 72 percent said they favored electronic health records. The support was consistent among all ages, income levels, education and political affiliations, the Markle Foundation said. About 70 percent also said employers should not have access according to the study conducted by Virginia-based Public Opinion Strategies for the technology advocacy group. Most patients surveyed said electronic data could help doctors find information more quickly and make better decisions. That would lead to faster and more efficient care, especially in emergencies, they told researchers. .

[3] Definition of Health Care Information and Management Systems Society has been published and is available online at the HIMSS web site at www.himss.org/ASP/topics_ehr.aspHIMSS

[4] The *Decade of Health Information Technology* report has been published and is available online the HHS web site at www.hhs.gov. See also: Oct. 6, press release: HHS Awards Contracts to Advance Nationwide Interoperable Health Information Technology and October 5 press release: HHS Accelerates Use of E-prescribing and Electronic Health Records. www.hhs.gov/news/press/2005pres.html.

[5] Policy Position HHS-29 has been published and is available online at the NGA web site at www. http://www.nga.org/portal/site/nga/menuitem.8358ec82f5b198d18a278110501010a0/?vgnextoid=9c31e790fa435010VgnVCM1000001a01010aRCRD

[6] These results were produced through a telephone survey of a random sample of 250 physicians in the Department of Health Professions records with practice sites in Virginia. Forty-one were eliminated because they either practice at a hospital whose EHR status is known, or because the practice was already represented in the sample. The remaining 209 practice sites were contacted and the surveyor asked to speak to the business manager. The physician practice, regardless of the size of the practice, is the denominator used in these results, not the individual physician. Based on the sample size, the error rate is 8.7%. Further information concerning the use of EHR in physician practices can be found within the Subcommittee II report.

[7] Medical Groups' Adoption Of Electronic Health Records And Information Systems, Sept/Oct issue of Health Affairs, http://www.healthaffairs.org/ October 7, 2005

[8] A.M. Audet et.al. "Information Technologies. When Will They Make It into Physicians' Black Bags?" Medscape General Medicine 6, no. 4 (2004) www.medscape.com/viewarticle/493210 (29 June 2005)

[9] This is a consensus definition of the term accepted by a broad cross-section of the health care sector and developed under the auspices of the National Alliance for Health Information Technology.

[10] The Health Care Workforce Shortage: An Analysis of the Scope and Impact on Northern Virginia. (January 2005)and Executive Summary of: The Health Care Workforce Shortage: An Analysis of the Scope and Impact on Northern Virginia. (January 2005)

ATTACHMENT A:

Subcommittee I

Electronic Health Record Status in Virginia

And Lessons Learned From Other States

Mission Statement for Subcommittee I

To survey the status of Electronic Health Record (EHR) adoption in Virginia and other states and to identify strategies to facilitate wider EHR adoption and Regional Health Information Organizations (RHIO) development.

Other State's Experiences with Electronic Health Records

In order to begin to ascertain what electronic health information activities are underway in other states, the Association of State and Territory Health Officials (ASTHO) convened a conference call to discuss this issue. Nine states participated in the call with four of those states being recipients of an Agency for Healthcare Research and Quality (AHRQ) eHealth grants. The following themes emerged:

- The key drivers of eHealth initiatives are the desire to curb rising healthcare costs through reduction of medical errors and to reduce provider inefficiencies due to lack of data to support patient care.
- Substantial struggles with defining the role of the state in fostering the development of eHealth initiatives were reported. However, all states formed governance bodies composed of representatives from all stakeholders.
- States recognized the need for public health involvement. Those states that did not receive some sort of federal grant assistance are building on their existing public health reporting infrastructure, such as immunization registries, to create more robust health information systems.
- Financing and funding to support ongoing operations is a challenge. Federal grants and contracts serve as the major revenue source for upfront funding.

Case Study: Indiana

Indiana formed a study committee based on the Institute of Medicine's Medical Error Report. As a result of this work, legislation was recently passed to establish a Medical Informatics Commission with the goal of implementing EHRs statewide. Indiana has two functioning RHIOs in the state. The Union Health Information Exchange in Indianapolis began over a decade ago as the Indianapolis Network for Patient Care, a project of the Regenstrief Institute, a private, not-for-profit research leader in medical informatics and health services research. Some of the start-up funding came from Biocrossroads, a market/economic development organization. This now mature RHIO has never looked at the federal government for financial support. The ongoing support comes from payment for services from those who benefit from using electronic transfer of information over costlier paper-based processes. The RHIO receives data electronically and delivers it to data consumers such as healthcare providers. Data is currently delivered in a variety of ways, but through the use of electronic methods and through economies of scale, the RHIO can deliver them more cost effectively. The current AHRQ grant is being used to fund the start-up of the second RHIO in the state. This RHIO has representatives from public health and the Medicaid program on its governance board. As this RHIO also moves to a business model for funding, similar to the Indianapolis RHIO, the Department of Health, as a user, will provide financial support to the project.

Detailed information about EHR in the states participating in the ASTHO conference call can be found in Appendix 1.

Another source of information about other states comes from the eHealth Initiative Foundation's second annual survey of state, regional and community-based health information exchange initiatives. Health information exchange is defined as the mobilization of health information electronically across organizations within a region or community. The number of respondents tripled from the previous year with sixty-five organizations or 60 percent of the respondents identifying themselves as "advanced" or well underway with implementation. The survey findings pointed out that without broad adoption of national standards, the creation of innovative capital funding sources to support start-up costs, and the alignment of incentives to support the mobilization of information through eHealth to support patient care, the efforts to expand interoperability may move at a slow pace. The analysis of this survey produced the following key findings:

- Health information exchange activity is on the rise. The reported number of exchange organizations considered fully operational increased from nine in 2004 to 25 in 2005.
- The key driver moving states, regions and communities toward health information exchange is provider inefficiency due to lack of data to support patient care.
- Health information exchange efforts recognize the importance of privacy and security.

- Health information exchange efforts are maturing: organization and governance structures are shifting towards multi-stakeholder models with the involvement of providers, purchasers and payers.
- Advancements in functionality to support improvements in quality and safety are evident.
- Health information exchange efforts are delivering more information and increasingly using standards for data delivery.
- Securing funding to support start-up costs and ongoing operations is still recognized as the greatest challenge for all efforts.
- Funding sources for both upfront and ongoing operational costs still rely heavily upon government funds but alternative funding sources for ongoing sustainability are beginning to emerge. These include payments from hospitals, physician practices, public health, laboratories, payers, and purchasers.

Case Study: New York

In October of 2004, the United Hospital Fund engaged a broad range of healthcare leaders across the state to determine what steps could be taken to improve healthcare in New York through broader adoption of health information technology and health information exchange. The eHealth Initiative Foundation is supporting the identification of specific strategies to estimate health information technology value and to identify business models to sustain technology adoption and use. This effort builds on the New York State Analysis conducted by the Center for Information Technology Leadership with support from the United Hospital Fund, which indicates that the net benefit associated with "level four" interoperability within New York over ten years is $12.4 billion.

The New York State Department of Health (NYSDOH) is also focusing on opportunities for technology policy coordination. The NYS HIT Working Group has been established as a vehicle to communicate and coordinate across a wide variety of state agency components – Medicaid, public health, professional licensure, technology procurement, and capital financing. Several funding opportunities that directly or indirectly relate to health information technology are in process:

- HEAL-NY funds were approved in the state's 2005 budget, and additional federal waiver funds may soon be available.
- A request for proposal for disease management demonstration projects has been published, and the budget also established a new "pay for performance" demonstration program.
- Additional funds were appropriated to support physician health information technology adoption. NYSDOH is developing a coordinated

approach to guide both the general purposes and specific criteria relating to these funds. It is also exploring opportunities to promote broad adoption of electronic prescribing as a means to improve quality and safety, while also maintaining the state's stringent regulatory provisions relating to controlled substances.

The Greater New York Hospital Association (GNYHA) recently published a report that profiles 10 RHIOs covering almost every region of the state. A number of initiatives were highlighted including the Taconic Health Information Network and Community that is focusing on physician electronic medical record adoption and the transmission of prescribing and performance measurement information through a web-based data portal. Also mentioned were the New York Clinical Information Exchange that is being organized to facilitate access to patient information at the point of care in emergency rooms, the Queens Health Connection Card Program that is a personal health record for disease management activities, and the upstate New York Professional Healthcare Information and Education Demonstration Project.

Virginia Physicians' Experiences with Electronic Health Records

Note: These results were produced through a telephone survey of a random sample of 250 physicians in the Department of Health Professions records with practice sites in Virginia. Forty-one were eliminated because they either practice at a hospital whose EHR status is known, or because the practice was already represented in the sample. The remaining 209 practice sites were contacted and the surveyor asked to speak to the business manager. The physician practice, regardless of the size of the practice, is the denominator used in these results, not the individual physician. Based on the sample size, the error rate is 8.7%. Further information concerning the use of EHR in physician practices can be found within the Subcommittee II report.

Electronic Health Record Survey

Call Disposition:

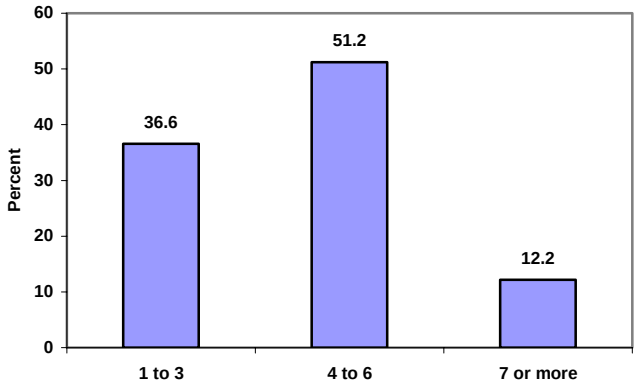
The results are based upon 159 surveys completed to date.

- 17% (27 of 159) were wrong numbers
- 5% (6 of 132 valid phone numbers) were refusals
- 95% (126 of 132 valid phone numbers) were completed

Q2. Does your office have any form of electronic health record system in use today?

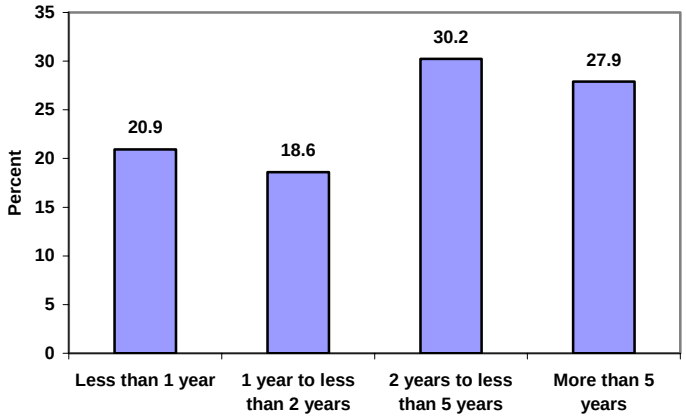
- Thirty-three percent of respondents (42 of 126) said that they currently have an EHR in use today.
  - 12% (15 of 126) reported 3 components or less (of 11 total components)
  - 17% (21 of 126) reported 4 to 6 components
  - 4% (5 of 126) reported 7 or more components

- Of those who said they had an EHR, 36.6% utilized 3 components or less.

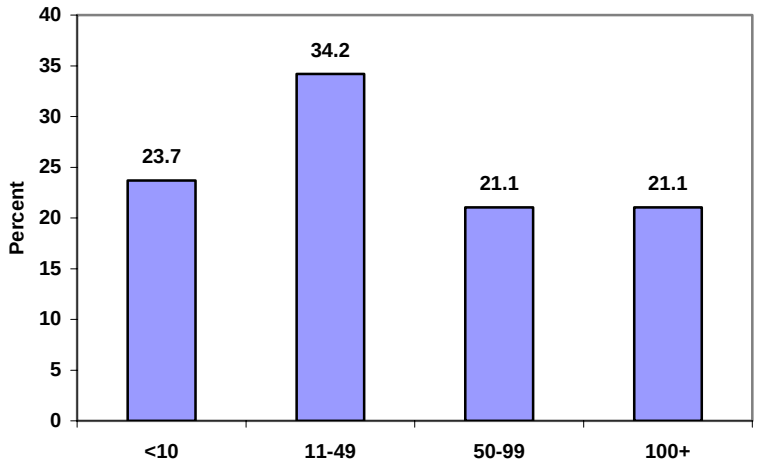


- Those in a hospital setting (60%) were more likely than those in large group practice (3 or more doctors; 33%) and small group practice (2 or less doctors; 17%) to have and EHR.

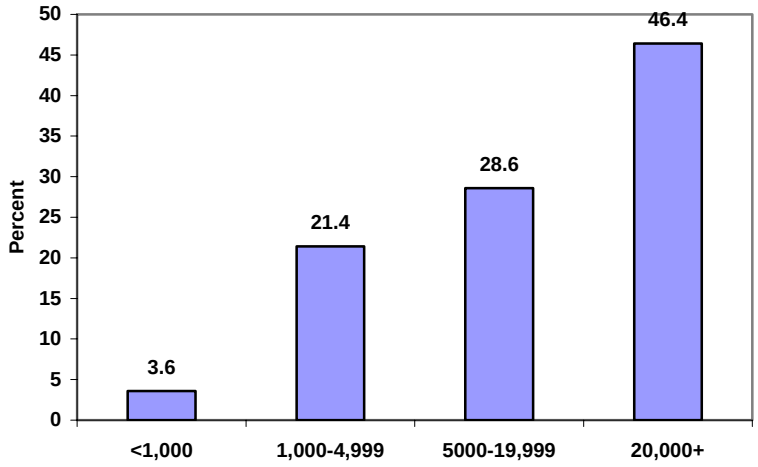
Q2a. How many years have you had your current electronic health record system?



Q2b. On average, how may staff currently use the electronic health record system?



Q2c. On average, how many patient records are currently in your system?



Q3. Please tell me whether you currently use this feature of an EHR:

Electronic Health Record Feature	Percent Currently Using this Feature
Electronic receipt of lab results	62%
Direct entry of progress notes	57%
Access to decision support such as online reference material	56%
View images	55%
Electronic lab ordering	50%
Alerts to drug interactions	40%
Electronic image ordering	38%
Records can be transmitted or received from other offices/systems	38%
Electronic Prescriptions	24%
Alerts to deviations from patient care protocol	14%
Patients can access part or all of the record	5%

Q4. Are you currently experiencing any problems with your EHR system?

Only 21% (9 of 42) of those with an EHR reported problems.

Q5. What are the benefits that you have experienced since using an EHR system?

Benefit	Pct
Enhances efficiency	89%
Improved communication	47%
Improved accuracy/reduction of errors	47%
Improved patient processing	45%
Cost savings	34%
Improved patient safety	29%
Revenue enhancements	18%
Competitive advantage	5%

For those who do not currently have an EHR:

Q6. Do you plan on implementing an electronic health record system in the next 2 years?

Of those who do NOT have a current EHR, 18% (14 of 79) plan to in the next 2 years, 54% (43 of 79) were not, and 28% (22 of 79) were not sure.

Q7. What is the biggest barrier to adopting an electronic health record system?

Cost is mentioned by 33% (27 of 81) respondents.

Other barriers mentioned included:

10% Small office, no need for EHR (8 of 81)
9% No interest, like existing system, don't see benefits (7 of 81)
7% Training/Technology issues (6 of 81)
5% Too many paper records to convert (4 of 81)
4% Too disruptive (3 of 81)

4% Too many to choose from (3 of 81)

The survey instrument is found in Appendix 2

Workforce Capacity for Electronic Health Record Adoption

Another possible barrier to wider adoption of EHR's is the availability of trained staff to manage the process.

The career field of Medical Records and Health Information Technician, which includes Registered Health Information Management Technicians (RHIT) and Clinical Coders, is projected to grow 47% in the United States between 2002-2012. This career field is ranked number one (1) of the 76 fastest growing career fields requiring a post secondary education or an Associate Degree by the Bureau of Labor Statistics (BLS.) The growth rate for Medical Records and Health Information Technician in Virginia is projected for the same time period to be 53%.

State and National Trends

United States	Employment		Percent Change
	2002	2012	
Medical records and health information technicians	146,900	215,600	+ 47 %
Virginia	**Employment**		**Percent Change**
	2002	**2012**	
Medical records and health information technicians	3,350	5,130	+ 53 %

Registered Health Information Administrator (RHIA), which requires bachelor's degree or higher, is listed separately by BLS with Medical and Health Services Managers and is projected to have a +29% growth rate nationally and 30% growth rate for Virginia from 2002 to 2012:

State and National Trends

United States	Employment		Percent Change
	2002	2012	
Medical and health services managers	243,600	314,900	+ 29 %
Virginia	**Employment**		**Percent**

	2002	2012	
Medical and health services managers	3,350	4,340	+ 30 %

There are only two American Health Information Management Association (AHIMA) accredited Registered Health Information Technician (RHIT) Programs in Virginia: Medical Education Campus, Northern Virginia Community College and Tidewater Community College.

There are presently no Registered Health Information Administration (RHIA) Programs in Virginia. DeVry University is exploring beginning a RHIT to RHIA program in 2006.

The Northern Virginia Health Care Workforce Alliance (NVHCWA) a coalition of private sector, business, government, community, health care and educational leaders formed with the mission to establish a long-term, business-driven, sustainable strategy to address the Northern Virginia health care worker shortage.

The Northern Virginia Health Care Workforce Alliance (NVHCWA) engaged PricewaterhouseCoopers to conduct a study of these issues. They analyzed the scope and impact of the healthcare workforce shortage on Northern Virginia. The results are found in the following report:

The Health Care Workforce Shortage: An Analysis of the Scope and Impact on Northern Virginia. (January 2005)

Executive Summary of: The Health Care Workforce Shortage: An Analysis of the Scope and Impact on Northern Virginia. (January 2005)

The estimated demand for health care workers in 2010 and 2020 is noted on the following chart.

Estimated Demand for Health Care Workers through 2020

Occupation Title	Current Employment	Current Shortage	Current Demand	Projected Health Care Workforce Needs by 2010	Projected Health Care Workforce Needs by 2020	Percent Shortage in Workforce by 2020
Registered nurses (including CRNAs, nurse practitioners, and nurse midwives)	9,082	1,038	10,120	12,056	15,432	41.1%
Nursing aides, orderlies, certified nurse assistants, attendants	3,245	323	3,568	4,251	5,441	40.4%
Medical records and health info technicians	1,337	172	1,509	1,872	2,547	47.5%
Dental assistants	1,110	20	1,130	1,402	1,906	41.8%
Medical and nurse managers	1,054	76	1,130	1,345	1,722	38.8%
Home health aides	1,080	40	1,120	1,334	1,708	36.8%
Dental hygienists	750	30	780	967	1,316	43.0%
Emergency medical technician/ paramedics	864	19	883	1,052	1,347	35.9%
Radiologic technologists and technicians	723	109	832	991	1,268	43.0%
Licensed practical nurses	1,111	390	1,501	1,669	1,919	42.1%
Physical therapists	573	119	692	825	1,056	45.7%
Physical therapist assistants	255	91	346	430	584	56.3%
Occupational therapists	350	67	417	496	635	44.9%
Respiratory therapists	233	39	272	324	415	43.9%
CT scanning technologists	237	24	261	312	399	40.6%
Medical and clinical lab technologists	397	30	427	474	545	27.2%
MRI technologists	172	22	194	232	296	41.9%
Speech language pathologists	122	46	168	200	256	52.3%
Pharmacy technicians	149	16	165	196	251	40.6%
Pharmacists	139	24	163	194	249	44.2%
Surgical technologists	134	21	155	184	236	43.2%
Medical and clinical lab technicians	228	32	260	289	332	31.3%
Phlebotomists	156	15	171	190	218	28.4%
Surgical technicians	33	-	33	40	51	35.3%
Grand Total	23,534	2,763	26,297	31,325	40,129	41.4%
Projected Health Care Workforce Vacancies from Current Employment Estimates				7,791	16,595	

This Pricewaterhouse Coopers study for Northern Virginia found there was an 11% shortage of medical records technicians, which is the equivalent of 172 open positions in the Northern Virginia service area alone. To eliminate the shortage and keep up with anticipated demand and population grown, Northern Virginia will need to add over 363 technicians by 2010 and another 675 by 2020. An average of seven medical records technicians graduated each year from Northern Virginia Community Colleges between 1999 and 2003. At this graduation rate, an addition 49 technicians will be added to the workforce by 2010**, 314 below market demand estimates just for Northern Virginia.**

Task Force I Recommendations:

- **Establish an ongoing statewide Health Information Technology Leadership Group.**
- **Conduct financial modeling to demonstrate the cost/benefit of EHR adoption for physician practices.**
- **Participate on the federal level to support the adoption of EHR standards.**
- **Review action steps of the Northern Virginia Health Care Workforce Alliance regarding the expansion of education in healthcare technology for its applicability to all of Virginia.**
- **In the state's role as a purchaser, work closely with the Department of Human Resources and Medicaid to establish incentives for EHR adoption.**
- **Appropriate state monies to facilitate increased RHIO development and other eHealth initiatives.**

Attachment B:
Governor's EHR Task Force Subcommittee*#2*
EHR in Private Medical Practices

Part I: Executive Summary

Introduction: Task Force and Study

In April 2005 Governor Warner issued Executive Directive 6 to create the Governor's Electronic Health Records (EHR) Task Force. The Task Force was established to conduct a two-year study and advise the Governor and the General Assembly in a first-year report made by November 1, 2005.

Vision Statement for EHR in Private Medical Practices

The Subcommittee created the following vision statement to guide its deliberations:

> *"The Commonwealth of Virginia seeks to improve public health and health care while increasing the efficency of all health care programs funded by the Commonwealth."*

This vision will in large measure be obtained by electronically exchanging the maximum amount of patient demographic, administrative, billing and clinical information among any and all providers within the state who are treating patients whose primary funding source is the Commonwealth.

Part II: Executive Directive for Subcommittee #2

Subcommittee #2 is charged with studying Electronic Health Record technology and the factors that can promote its use by physicians in private medical practice.

Critical Factors for EHR's Success in Private Practice

Subcommittee # 2 addressed the following topics in its June and July meetings. Individual members commented on each topic as an assignment by the Subcommittee Chair. These early comments were used to expand the Subcommittee's study of these topics in further depth.

Collaboration among Stakeholders

From the 6/8/2005 Subcommittee Meeting John Dreyzehner, M.D. stated that there was "one key issue regarding Health Information Infrastructure with regard to sharing health care information among providers and that was the need to create ways competing entities in our competitive health care environment can create the mechanisms to achieve a zone of cooperation and collaboration in the larger zone of competition. He outlined two approaches into gaining insight: 1) Research should be done to find out the extent of existing collaborations among health care stakeholders and 2) Of those who have created this zone of collaboration, why and how they have cooperated."

Promotion of EHR in Various Provider Settings

Carolyn Bagley commented in the 6/8/2005 Subcommittee Meeting "there was very little communication between providers partly because of connectivity issues."

Development of Technology Platform

Recognizing the development of a technology plan was an indirect undertaking for Subcommittee # 2 the first thoughts were to look at what was being developed in other states. An early "home work" assignment was to review Florida's pilot projects as examples of what one State adopted. Diana Horvath also briefed us in the 7/5/2005 Executive Meeting that platform issues are being addressed by Subcommittee # 4 Chaired by the Honorable Eugene Huang, Secretary of Technology.

Identification of Obstacles and Options

Obstacles to adoption of electronic health records were also discussed in our early sessions. A common obstacle stated by Doctor Dreyzehner in the meeting of July 18, 2005. "One reason some providers have not done it so far is because of money, that is, the costs of the system, implementation and ongoing support with a low perceived ROI. The primary financial beneficiaries of the efficiencies these systems promise are often seen by doctors as the "Payors", that is, employers and the insurance companies." A key obstacle on the patient/consumer side are privacy concerns, in particular, the "Big Brother" feeling that their lifetime of sometimes embarrassing or consequential health care issues could now be forever knowable and discovered, even if they are no longer clinically relevant or important to the patient's care.

There will be a desire and need to keep some information indefinitely, such as vaccination histories or blood pressure readings but standards will have to be developed to allow some information to "sunset" once it is no longer clinically relevant. The data might still be available but technologically stripped of identifiers and not available via an exchange. It might still be housed and still identifiable at the original point of care as is now the case with paper records.

Additional data collection priorities and systems

From our first teleconference it was decided that the subcommittee members would partner to encourage study of the available data. In addition, the subcommittee staff committed to providing high quality research material. The Task Force staff also created a Listserv “Governor E.Health” and a dedicated Web Page “eHealth Electronic Health Records” to provide data and important Task Force activity information to the members and the public.

Assurance of Privacy and Security

One of the specific tasks of the Task Force is to make recommendations on how to protect confidentiality and security. Subcommittee # 4 will be leading the Task Force in making recommendations in assuring privacy and security through setting standards consistent with federal and State law and regulations.

Development of Performance Measures and Benchmarks

The Subcommittee Chairs were briefed that the Governor’s Legislative Liaison Office is tracking federal legislation related to Health Information Technology at the federal level. This information will be used by the Task Force to identify upfront funding mechanisms, ongoing sustainability of projects, Safe Harbor legislation of EHR use, and national standards and interoperability developments.

Recommendations of Policy and Budget to Governor and General Assembly

The four Subcommittees of the Task Force will combine their findings to develop its recommendations to the Governor and General Assembly.

Conclusions: Roles and Recommended Actions

During its deliberations over the summer, the Subcommittee Chairs concluded that the Commonwealth can play several direct roles *over the next five years* to promote the use of electronic health records.

Roles for the Commonwealth

Payer

- Provide payment incentives (e.g., 2-4% payment improvement) for providers and/or plans that incorporate and utilize key health care IT tools

- Pilot patient incentives for preventive care follow-through, chronic disease management, specific disease populations and disparate populations.

Purchaser

- Incorporate incentives for plan and provider adoption of EHR elements in self-funded State health plan contracts
- Provide personal health record for employees, coupled with incentives for completing health assessment, addressing risk factors and managing chronic disease

Eliminating Regulatory Barriers

- Update state medical and health data privacy laws as necessary to support secure and effective EHR systems. The Commonwealth has a concern for health care data privacy and the perpetual existance of data in electronic form.

Provider

- Serve as active business partner in Regional Health Information Organizations (RHIOs) through local health departments
- Pilot systems for exchanging information between public mental health and acute care systems
- Commit to share state IT infrastructure with qualified safety-net providers in underserved areas
- Assure all regions of the State are equitably enabled to participate in EHR development.

Bully Pulpit

a. Develop public information campaign on benefits of health care information infrastructure
b. Hold EHR annual summit with public and private stakeholders
c. Reward early adopters with recognition

Infrastructure Creation

- Establish grant and/or loan repayment funds for safety-net providers to participate in regional health information exchange initiatives
- Support needed internet/bandwidth capacity in medical shortage areas
- Create state office for providing technical support to RHIO development

Five-year Plan for Task Force Recommendations and Commonwealth

Generally, the Electronic Health Records Task Force recommendations and the Commonwealth plan should focus on the next 5 years, while providing 5-7 major objectives.

1. These objectives should come from the amalgamation of the subcommittee recommendations put forth in their reports.
2. The plan should have two major philosophical themes, first enable data exchange, second providing market driven assistance. This should translate into spending more effort and funding aimed at connecting and collaboration of the Commonwealth to

providers, rather than constructing mechanisms for providers to exchange data among themselves.

a. By definition a statewide payer and purchaser of health care means the Commonwealth has influence and opportunities to lead by example. Rewarding providers for implementing EHRs and for electronic submission of clinical data should be a keystone concept for the next 5 years.
b. The Commonwealth should construct programs to encourage and incentive state employees to seek providers with effective reporting technologies.

1. A critical outcome during the next 5 years is for all state operated provider settings to have EHRs. Why should physicians and others adopt EHRs, when they aren't universally implemented in state facilities? As these sites come on line, they can be connected to local providers and continue with a strategy to connect all providers to the Commonwealth. The pulpit is a useful tool, and the Commonwealth should preach the value of EHRs, but it must do so from the position of accomplishment and experience.

2. When it comes to major infrastructure assistance for RHIOs, the Commonwealth should not move aggressively, except for helping Hospital Emergency Departments connect to the state and local markets as desired. RHIOs may well become successful if they can overcome competitive issues, legislative barriers, lack of funding, lack of standards, and low adoption rates of systems within providers. For the next few years, while the facts on their success are so unclear, the Commonwealth should direct most of its efforts towards endeavors other than full-blown RHIOs.

Recommended Actions

In order to obtain the vision for streamlined care, the following strategic actions are recommended.

- Provide a program of incentives for Medicaid and State Employee physicians and other providers to install and use Electronic Health Records (EHR).

- Directly promote adoption of EHRs to physician stakeholder groups.

    - Coordinate all long-term state transactions exchanged under a published plan using the highest amounts of standard technologies. Link financial incentives and disincentives to the migration away from paper and towards data information exchange national standards, and.National Health Information Network (NHIN).

- Encourage the Medicaid Program to promote electronic data exchange with the ultimate goal of eliminating paper in its billing and reporting requirements.

- Electronic Heatlh Record Pilot Project (Attachment A)

Community Health Center organizations in Virginia serve the uninsured and underserved populations throughout the state in eighty-eight (88) urban and rural sites. Last year, the centers served over 62,000 uninsured and over 36,000 Medicaid patients with Primary Health Care needs.

> In 2000, the centers coordinated their information technology efforts to establish a statewide network and operate a Practice Management system purchased from one vendor. Today, the Community Health Centers have strengthened the network by continuing to take advantage of the changes in connectivity as they develop, particularly in rural areas and by looking for opportunities to be cost-effective.
>
> The plan is to develop a state wide integrated electronic health record system that initially operates within the functioning network. Then, to reach out to partners such as hospitals, private practices, laboratories, radiology offices, the Department of Medical Assistance, the Virginia Department of Health and insurance companies to network to their systems and share data.

- Electronic Health Record Project (Attachment B)

Any state wide EHR initiative should involve the Commonwealth's safety net providers, which include the 61 sites operated by Virginia's 50 Free Clinics. The Free Clinics' history of mutual cooperation and local partnerships with the Commonwealth's health systems make them a logical choice for beta testing of EHR software. Furthermore, the variety of clinic sizes, geographic locations, and varying degrees of computer sophistication of clinic staff would allow for a robust test of the technology. Since Virginia's Free Clinics are already accustomed to both caring for individual patients and tracking activities at a population level, a representative sample of Free Clinics might be the ideal way to test several facets of a statewide EHR system.

Electronic Health Record Project

- The Department of Mental Health, Mental Retardation and Substance Abuse Services (DMHMRSAS) and the Virginia Association of Community Services Boards (VACSB) propose the creation of a public-private behavioral health regional health information organization (RHIO) in far Southwest Virginia that

will link state-operated facilities to community services boards (CSBs), private providers, and other public and private partners (e.g., acute care hospitals, health plans, medical society, etc.) to electronically share behavioral healthcare information. The RHIO will additionally foster linkages with CARESpark, an emerging RHIO in the Northeastern Appalachian Region.

Part II: Report to the Governor's Electronic Health Records Task Force

Formal Virginia Surveys in EHR Use

An overview of the current status of EHR in Private Medical Practices in Virginia shows a wide variance of implementation in the Commonwealth. Subcommittee #2 obtained current EHR adoption survey information from three different sources as outlined below. In addition, the Subcommittee Members felt it was important to conduct an informal survey and request a number of different speakers to provide information on the current status of EHR development in Virginia.

The Virginia Academy of Family Physicians conducted a survey in the spring of 2005 of their membership. Attachment D at the end of this report is their survey instrument. The Virginia Academy of Family Physicians provided permission to share the responses from questions numbered 6 & 7 to Subcommittee 2. The results were as follows:

Total Number of Surveys Mailed	1,591	Percent
Total Number of Surveys Received	499	31%
Do you have an EHR in your office?	Yes – 145 No – 350 No Response – 4	29% 70% 1%
If you don't have an EHR do you plan to implement one in the next two years?	Yes – 168 No – 152 No Response – 30	48% 43% 9%

The Medical Group Management Association (MGMA) surveyed more than 3,000 medical group practices to assess their current use of information technology and their

plans for adopting electronic health records, and to understand the costs and benefits of EHRs and the barriers to and facilitators of adoption, via their Center for Research, funded by a grant from the AHRQ. Distribution of the ~120 responses from practices that responded to the survey in Virginia included 56 primary care practices (excludes OB/Gyn, pediatrics and geriatrics; includes general internal medicine, family practice, and multispecialty groups that provide primary care).

The following data for the State of Virginia is from a nationwide study in early 2005 by the Medical Group Management Association Center for Research. This information is made avialable to Subcommittee 2 by Terry Hammons MD Sr Vice President, Research and Information Medical Group Management Association. The table information below provides information from the survey sample regarding the current status of electronic health records use in Virginia.

The survey sample of medical group practices was to assess the current use of information technology. "The survey examined their plans for adopting electronic health reocrds (EHRs), the costs and benefits of EHRs, and the barriers to and facilitators of adoption."… "We surveyed a nationally representative sample of medical group practices to assess their current use of information technology (IT). Our results suggest that adoption of electronic health records (EHRs) is progressing slowly, at least in smaller practices, although a number of group practices plan to implement an EHR within the next two years. Moreover, the process of choosing and implementing an EHR appears to be more complex and varied than we expected. This suggests a need for greater support for practices, particularly smaller ones, in this quest if the benefits expected from EHRs are to be realized." 1

1 Medical Groups' Adoption Of Electronic Health Records And Information Systems, Sept/Oct issue of Health Affairs, http://www.healthaffairs.org/

The following two tables provide significant information from this exhaustive study.

Virginia, Table 2a: Distribution of Practices by Type of Health Record for All Medical Groups

	Count	Percent
Paper medical records filed in record cabinet	93	75.0%
A scanned image filed electronically using DIMS	4	3.2%
A dictation and transcription system combined with a DIMS	8	6.5%
EHR storing information in a relational database	16	12.9%
Other	3	2.4%
Total	124	100.0%

Virginia, Table 2b: Distribution of Practices by Degree of Implementation of EHR for All Medical Groups

	Count	Percent

Fully implemented for all physicians and locations	15	12.2%
Implementation in process	16	13.0%
Implementation planned in next 12 months	25	20.3%
Implementation planned in next 13 to 24 months	27	22.0%
Not implemented and no planned implementation in 24 months	40	32.5%
Total	123	100.0%

The Governor's Task Force on Information Technology in Health Records Electronic Health Record Survey

The Department of Health conducted an electronic health record survey in September 2005 of a scientific sample of 209 physicians. Of the 126 respondents 33 currently have an EHR in use. Physicians in a hospital setting were more likely than those in a large group practice and a small group practice to have an EHR. Physicians with an EHR system rated enhancec efficiency as the most important benefit from its use. Eighteen percent of the respondents in the Health Department Survey stated that they planned to implement an EHR system in the next two years.

Anecdotal Information from an Informal Survey

In addition to the formal survey results made available to the Subcommittee we conducted an informal review of physicians in the Richmond area with the assistance of the Richmond Academy of Medicine. The anadotal responses were varied and reinforce the challenges and opportunities of electronic health record adoption. The following exerpts were received in July 2005.

"My practice has looked at EMR off and on for some time. We have not changed to this system for a number of reasons, the most obvious of which is cost. The most recent system I priced was $7000 per physician per year.

These systems are widely varying in capability, utility, and ease of use and are far from being standardized. Converting current charts to EMR format would be an overwhelming project for most physicians' offices. A physician just starting practice (who can, of course, least afford it) would have the greatest ease in setting up this kind of record system in his/EHR office. For those who have been in practice even a few years, the conversion would likely be very costly and disruptive.

If physicians are to be encouraged or expected to use EMR systems, they will absolutely

need serious help, financial and otherwise, in doing so."

_____

"I'm responding to the request you forwarded through RAM regarding use of electronic medical records. I'm a pathologist with primarily a hospital based practice so my answers may not be too useful. We have been totally electronic for approximately 15 years and it would be unthinkable to go back to manual records."

The Attachments

The Subcommittee members held six (6) teleconference meetings during the summer months of 2005 before the October 3, 2005 Task Force Meeting. The Subcommittee hosted guest speakers and reviewed a volume of the latest information available regarding the developments in EHR to develop its recommendations to the Task Force contained in this report. The attachments to the main body of the Subcommittee's Report represent the detail discussions, proposals, and presentations made to the Subcommittee during the full course of its six meetings.

Recap of Subcommittee #2 Conclusions

The following items constitute the major conclusions of Subcommittee #2:

1. The EHR Task Force and Commonwealth of Virginia should focus on a five-year plan that puts forth between five and seven major objectives. The objectives should:
    - Come from the amalgamation of the subcommittee recommendations as established in committee reports;
    - Have two major philosophical themes:
1. A focus on the enabling of data exchange;
2. A concern for market-driven assistance.

2. The Commonwealth's priorities over the next five years should include embracing all of the following roles, in the order in which they appear:
    - Payer
    - Purchaser
    - Eliminator of Regulatory Barriers
    - Provider
    - Speaker from the Bully Pulpit
    - Creator of Infrastructure

In closing, it is the opinion of Subcommittee #2 that the Commonwealth has both the leverage and the stakeholder interest to play several major roles in the promotion and successful adoption/implementation of EHR in private medical practice. By identifying those roles, the subcommittee is providing a point of departure for further progress. Furthermore, the subcommittee believes that the Commonwealth needs a long-range vision approach (e.g., five years) to the project because of its complexity and size. By making the facilitation of data exchange and market-driven assistance two of the larger themes in a five-year plan, the subommittee believes that the proper courses of action will evolve accordingly.

ATTACHMENT C:
Subcommittee #3 EHR in Hospitals and Institutions
Interim Report - September 2005

I. Task Force Charge

The key component of the Task Force's charge articulated in Governor Warner's Executive Order was:

> "Initiating a plan for the development and implementation of a Virginia health information infrastructure, consistent with and complementary to developing national standards, that promote greater adoption of electronic health record information systems among all health care providers (including interoperability standards and mechanisms that allow current systems to share information with patients and other authorized users)."

II. Subcommittee #3

Subcommittee #3 was tasked with focusing on the status of EHR development in health care institutions today and where it could or should be in the future. The subcommittee defined institutions broadly to include hospitals and health systems, long term care providers, health plans (both in terms of their own EMR/EHR initiatives and incentives provided for others) and the public mental health facilities. The subcommittee also focused on the degree of interoperability among health care institution EHR/EMR systems, where interoperability was defined as "the ability of different information technology systems and software applications to communicate, to exchange data accurately, effectively and consistently, and to use the information that has been exchanged." (This is a consensus definition of the term accepted by a broad cross-section of the health care sector and developed under the auspices of the National Alliance for Health Information Technology).

III. EMR Development Within Virginia Healthcare Institutions

Drawing from recent national surveys and recent state efforts, the subcommittee collected and analyzed a variety of information about the current stage of EHR/EMR development among health care institutions, what barriers existed and anticipated progress. Current results for three of the major health care facility categories follow. The health plan picture is incomplete, but more information from a national survey of health plans will be available later this year and will be submitted to the Task Force at that time. The subcommittee opted to defer examination of public mental health system issues until Phase 2 of the Task Force's work plan.

A. Hospitals and Health Systems

Hospital adoption of information technology has been promoted as saving time, human and financial resources and patient lives. To understand the rate and issues in adopting information technologies (IT) - such as electronic health records (EHR) and computerized physician order entry systems (CPOE), as well as connectivity with others in the health care community and barriers to IT adoption - 53 Virginia hospitals and health systems completed a recent American Hospital Association survey.

Responding organizations represent slightly more than three-quarter of the Virginia hospital market. VHHA analyzed the Virginia responses according to hospital size and system affiliation pursuant to subcommittee queries. Analysis of the results is provided below and more detail is included in Appendix 1.

Sample

Two separate analyses were done. Sample A: Hospitals were separated in to 3 groups based on revenues. Group 1 (N=7) has revenues over 300 million dollars. Group 2 (N=19) has revenues between 100 million and 300 million. Group 3 (N=27) has revenues less than 100 million. Together the hospitals represent 76% of net revenue for 2003 (EPICS). Sample B: Hospitals were grouped based on their affiliation with a multi-hospital state or national health system. There were 41 hospitals assigned to the system group and 11 hospitals assigned to the non-system group. One submission of data was excluded because upon further research it was found not to admit acute care patients.

Findings

Information technology appears to be well accepted and used in all non-clinical areas. Patient scheduling systems lag behind other systems but are still widely used by in Virginia's facilities. This finding is consistent regardless of grouping by revenue or system affiliation.

The clinical side of the hospital has not yet uniformly adopted IT systems, but only one hospital out of the 53 is not actively considering, testing or using IT for clinical purposes. This facility is a long-term care, skilled nursing facility. This facility was excluded from system/non-system analysis.

Interestingly, few organizations are in a testing phase with any one health information technology. For the most part they have either partially or fully adopted the technology or are considering adopting it in three years.

Bar coding

The largest hospitals are the furthest along in implementing bar coding for patient identification. Five of the seven hospitals in this group have fully implemented bar

coding for this purpose and a sixth hospital has partially implemented the system. The seventh hospital expects to have it implemented in three years.

About half the hospitals in Group 2 have fully implemented bar coding for patient identification. One hospital in this group currently has no plans to implement the technology, but the others expect to have it in place in three years. In Group 3, three facilities have no plans to implement. The other 24 hospitals have either implemented it or are planning to implement bar coding systems in three years.

Today, bar coding is most likely to be used to manage specimens in hospital laboratories. Going forward, it will become more commonplace in pharmaceutical tracking and administration. The area least likely to see this technology fully implemented is supply chain management. This is unusual given the uniform use of bar coding by material management vendors.

Adoption of bar coding is further along in non-system hospitals for purposes of identifying lab specimens, tracking pharmaceuticals, and supply chain management (materials management functions). System hospitals have been more successful in implementing bar coding for patient identification and pharmaceutical administration (patient care functions). The non-system hospitals are more likely to consider not adopting bar coding for a specific purpose than system hospitals.

Other information technologies

Telemedicine and physician use of personal data assistants have been adopted by most large and medium sized hospitals. Small hospitals are likely to adopt telemedicine first followed by use of a personal data assistant. Radio frequency identification is being used by only a small number of medium size hospitals. Group1 and Group 3 have not adopted it at all.

System hospitals expect to have telemedicine and physician personal data assistants available in 100% of the facilities within three years. None of the three technologies will be implemented by 100% of the nonsystem hospitals.

Electronic Health Records

Hospital adoption of EHR technology appears to stimulate the records being available in other areas of the enterprise. Hospital, emergency department and pharmacy service records are most likely to be linked electronically in all hospitals within three years. The Group 1 hospitals have already completed this process. Group 1 hospitals have either implemented electronic health records in the additional patient areas or are in the process of doing so. A small percentage of Group 2 hospitals have no plans to link patient records outside of hospital inpatient, emergency department and pharmacy services.

Specific findings within the groups with regard to access, order entry and results review:

Hospitals have either completed implementing IT systems to access information about or for patients or are in the process of implementing them. Size appears to influence speed of adoption. Group 1 hospitals are more likely to have fully IT these areas with the exception of patient flow sheets. In the areas of medical records and patient demographics, the hospitals in Group 2 hospitals are close to completing adoption. In the Group 3 hospitals, IT is most likely to be applied to access to medical histories and patient demographics and least likely to link patient care with patient guidelines and pathways.

When the hospitals are grouped by system status, there is no clear picture that affiliation imparts a benefit for adopting information technologies that address access to medical records, medical history, patient flow sheets, patient demographics, clinical guidelines or picture archiving and communications. What is clear is that these modalities are being rapidly adopted by all hospitals.

Order entry of lab, radiology and pharmacy orders:
These systems have been fully adopted by the majority of hospitals. Based on the responses, one could predict 100% hospitals in the group to have them operational in 3 years. Unlike the system hospitals, all non-system hospitals have completed implementing order entry of lab and radiology orders. However, system hospitals will complete implementing order entry pharmacy first.

Results review of consultant, lab, radiology, radiology image and other tests:
Group 1 hospitals have fully implemented IT in these areas. Only in Group 3 are there hospitals that are not planning to have all the report functions implemented in three years.

Non-system hospitals have completed implementing IT systems for results review of lab tests and radiology test and over half of the facilities have completed implementing links to radiology imaging reports. They lag behind the system hospitals in results review technology for consultant reports, radiology images and other studies. This finding is not surprising given that the non-system hospitals have already completed order entry of lab and radiology orders.

Patient support through home-monitoring, self testing, and interactive patient education:
While all the Group 1 and 2 hospitals could be expected to have patient support systems up and running in three years, this cannot be said of hospitals in Group 3 as 42% of them have no plans for adopting the patient support systems listed. System affiliation does not appear to enhance the likelihood that a hospital will adopt IT for patient support.

Overall EMR Results

The findings indicate that most components of electronic health records are being rapidly adopted by all hospitals regardless of system ownership. Such records are common now in hospitals, emergency departments, and pharmacies. System membership appears to speed adoption of electronic health records in onsite and offsite clinics, onsite and offsite physician offices and other remote locations.

CPOE

CPOE has received a lot of press in the lay and professional literature about its contribution to patient safety. Its adoption appears to be lag behind that of electronic medical records. This may indicate that the organizations choose first to automate the care and tracking of inpatient and emergency room care, before turning to transforming the physician ordering process. The Group 1 hospitals are further along in CPOE adoption. For the most part, Group 2 and 3 hospitals are postponing adopting these systems for 3 years.

Non-system hospitals appear to focus their efforts to implement CPOE in areas of pharmacy, lab and radiology ordering. This is consistent with the approach to bar coding described earlier. Likewise, access to CPOE to automate and standardize the clinical ordering process to eliminate illegible, incomplete and confusing orders may be occurring more quickly in non-system facilities for inpatient services, emergency department and pharmacy. Over time, however, more systems facilities will adopt the technology, particularly in areas that are not treating inpatients, as the intent to adopt the technology outside inpatient areas is not being considered by some non-system hospitals.

Stand alone systems

Stand alone systems are neither plentiful nor uniformly integrated regardless of size or affiliation. However, the effect of system hospitals is that standalone information technology is more likely to be used and for it to be integrated with other hospital IT system.

Stand alone systems are most likely to be found in the catheterization and picture archiving and communications units. They are also the areas most likely to have integrated their systems with others in the hospital. The smallest hospitals are most likely to have Emergency Department stand alone IT and for it to be integrated with other hospital systems.

Information sharing with entities outside the hospital or health system

Sharing of patient information is not uncommon outside a hospital but size and system affiliation have an effect on to degree to which is occurs and with whom information is shared. Larger hospitals and system hospitals are more likely to have information sharing with outside entities. No hospital shares information with a school clinic. More Group 2 and 3 hospitals share patient data with retail pharmacies than largest facilities do. The lack of sharing among entities that influence types of care or payment may indicate where

the options are for developing RHIOs. When grouped by hospital size, the responses indicate private physicians, free standing image centers and long-term care facilities are most likely to have electronic access to hospital patient information**.**

Barriers to implementation of IT

Cost and problems with interoperability are significant barriers for Group 3 hospitals. Three factors that do not hinder any hospital's adopting information technology are: fear of obsolescence, legal barriers, and HIPAA compliance. Over half of all the hospitals consider the ability to support ongoing costs of hardware and software somewhat problematic. The ability to hire well-trained IT staff while somewhat problematic is not a significant deterrent for any hospital. A small number of hospitals in each group consider clinician acceptance of technology as a significant barrier to its adoption.

When the hospitals are grouped by system affiliation, the only clear finding is that the order of difficulty that barriers pose is consistent between the two groups. System hospitals may be more concerned about inability of technology to meet their needs, obsolescence, and acceptance of new technologies by clinical staff. With more than one hospital to manage, the degree of control over these factors may be more problematic for systems.

Summary of Hospital Results

Information technologies are already the norm in non-clinical areas of hospitals and quickly becoming the norm for clinical areas as well. Computerized physician order entry lags behind electronic patient information, but most hospitals have made significant headway in its implementation.

While detail results from other states are not yet available, one general result is that Virginia respondents seem to be well ahead of national norms in terms of the pace and scope of hospital IT, EMR and CPOE system adoption. This may be attributable to the relatively high level of system consolidation within Virginia hospitals.

Most hospitals participate in some local and regional patient data sharing arrangements, but the data sharing arrangements outside the hospital are not plentiful. Two factors, larger size and being part of a multi-hospital system, are associated with the presence of data sharing and doing so with more partners.

B. Health Plans

In general, health plans are committed to a system that can assure greater patient safety, improved quality and increased efficiency through the increased use of electronic health records. There is a broad understanding by health plans of the benefits and value of broader health care IT development. For example, integrated delivery system-model health plans (e.g., Kaiser and Sentara) are utilizing sophisticated information

management systems that will enhance the quality of patient care. Moreover, Anthem is utilizing incentives for provider adoption of certain IT tools tied to patient safety and quality outcomes built into its "Quality-In-Sights: Hospital Incentive Program" (Q-HIP). Anthem is also leveraging health care IT in its Anthem Point of Care program and its Model Provider Office pilot.

Kaiser

Mr. Ken Hunter, Chief Administrative Officer of Kaiser Mid-Atlantic, provided a thorough review of Kaiser's current Electronic Medical Record (EMR) initiative, including the basic capabilities, resources and timing of Kaiser's multi-year EMR effort – both in this region and nationally. Questions and discussion focused on the mechanisms for linkages with contracting providers, as well as the planned utilities for patients/enrollees. Mr. Hunter also described the emphasis Kaiser was placing on ensuring adequate physician and staff input and training along the path toward full implementation.

The EMR programs of organizations like Kaiser and Sentara – which encompass the health plan and much of the delivery system under a single organizational roof – offer a glimpse of what a fully functional electronic health record might include. For this reason, a summary of Kaiser's program is incorporated below. Sentara's EMR/EHR initiative is moving along a similar trajectory:

The Kaiser Permanente HealthConnect program integrates the clinical record with appointments, registration and billing to deliver improvements in care delivery and patient satisfaction across the Kaiser Permanente organization.
Key points about KP HealthConnect:

- **Privacy of information** is a top priority in designing and implementing KP HealthConnect. The design of the software ensures that sensitive medical information will be protected.

- **Patient Safety** will be enhanced by KP HealthConnect. Drug interactions and allergic reactions will be prevented by software that knows what medications the patient is taking and checks for conflicts. A patient's medical history will be available to every clinician who is involved in that patient's care--at the same time--even if the doctor is in Georgia, a nurse is in Colorado, and the specialist is in California.

- **Relationships** and **personal care** will be honored and enhanced by KP HealthConnect. One of the key goals of the project is to free up doctors' and nurses' time to spend with patients rather than on paperwork. Our own studies have already found that, for instance, having a computer in the exam room enhances communication between the doctor and patient.

- KP HealthConnect will help us protect the health of members of Kaiser Permanente. **Prevention and wellness** will be facilitated by the system; it will keep track of each patient's preventive care needs--checkups, follow-ups--and remind patients and their doctors when a screening is needed. Doctors, nurses and other caregivers will have the latest research, best information and tools available to care for their patients.

- Members will be able to **access their information online** and take care of medical needs online when KP HealthConnect is fully implemented. The first region to have online patient access will go live in late summer 2005. Kaiser Permanente members will be able to go online to http://www.kp.org to make appointments, view lab test results, refill prescriptions, view prescription histories, and communicate with their doctors and other health care providers online. A Kaiser Permanente patient will be able to see a history of visits with their doctor, even the diagnosis at each visit and recommended next steps for themselves and their self-care.

Anthem

Q-HIP: At Anthem Blue Cross and Blue Shield, a focus on EHR is an important component of its new hospital incentive program. The Quality Insights Hospital Incentive Program (Q-HIP) promotes use of Computerized Physician Order Entry (CPOE) systems following the Leapfrog guidelines. CPOE is an integral part of a facility EHR and through the stepwise approach in QHIP, Anthem rewards hospitals for developing a business plan and then for successfully moving through the necessary prerequisites culminating in full CPOE implementation.

Anthem Point of Care: Anthem Point of Care puts internet technology to work, providing a Web-based link between Anthem and its network-participating providers. With over 14,000 registered providers, Point of Care has evolved based on valuable input from providers, earning a proven track record. This electronic service helps ease the administrative workload of office staff by allowing them to perform administrative tasks quickly and easily -- including claims status inquiries, referrals and adjustments – saving time and resources.

Point of Care offers a broad array of features, allowing secure access to the following:

- Eligibility and Benefits (Including effective and cancellation dates for prior coverage information, patient’s primary care information and benefits such as deductibles and co-payments.)

- Claims Status (Includes 24 months of patient history with a line-by-line breakdown of claims processing information and an electronic link to submit adjustment requests.)

- Authorization Functions [Provides options to view, create and update specialty care reviews (referrals), inpatient admissions (pre-certification for inpatient stays) and health services reviews (outpatient pre-authorizations).] In addition, you can use these features to determine whether an outpatient authorization is recommended based on the procedure and the member's contract.

- eReports (Includes weekly remittance vouchers with the capability to view prior vouchers for the past 24 months and HMO and Point of Service primary care physician reports.)

- Links to Maximizing Electronic Commerce (claim submission, electronic payment, eligibility verification, etc.), Anthem's Web site (www.anthem.com) and the Anthem Professional Forum (monthly provider newsletter).

Model Provider Office Pilots: Finally, Anthem Blue Cross and Blue Shield has partnered with three large hospitals and one large physician practice to pilot an initiative to improve business operations and customer service by creating faster and more accurate claim payments, reducing billing rework and enabling correct copay collection at the time of service for the member. The project focuses on delivering eligibility and benefits information directly into the providers' health information system giving the provider the opportunity to deliver a cleaner electronic claim submission. In addition, the solution gives the provider the ability to correct claims pre and post submission.

AHIP – America's Health Insurance Plans

Finally, America's Health Insurance Plans (AHIP) is putting together a new report on health information technology called "Innovations in Health IT," which will provide a broad overview of recent IT initiatives by health plans, including work related to electronic health records. The report should be available later this fall and will be supplied to the Task Force as soon as it has been released.

C. Long Term Care

Virginia's nursing facilities, like their counterparts around the country, are just now beginning to seriously undertake efforts to implement information technology (IT) resources beyond those associated with basic financial management.

The recent growth in clinical IT capabilities for nursing facility providers can be largely attributed to federal requirements that took effect in the late 1990s. Regulations developed as a result of the 1987 Omnibus Budget Reconciliation Act (OBRA '87) require facilities to provide services to meet "the highest practicable physical, medical

and psychological well-being" of every resident. The medical regimen must be consistent with the resident's assessment and performed utilizing a uniform instrument known as the Minimum Data Set (MDS). The MDS collects assessment information on each resident's characteristics, activities of daily living, medical needs, mental status, therapy use, and other things involved in comprehensive planning for resident care.

In an attempt to gather basic baseline data related to the recent and planned investment in IT resources by Virginia's nursing facilities, the Virginia Health Care Association (VHCA) conducted a brief survey of its members. A summary of the survey results are included in Appendix 2.

Information provided by responses from VHCA members representing nearly 50% of all Virginia nursing facility beds indicates significant IT implementation activities in a number of clinical areas including care planning, MDS assessment and submission, dietary management, quality assurance and therapy management. However, less than 15% of Virginia nursing facilities are actively using, implementing or testing EHR resources and applications. On an encouraging note, over 60% of nursing facilities responded that they are considering the implementation of EHR resources over the next three years.

The VHCA survey also appears to confirm a long-held concern that for the vast majority of the Commonwealth's nursing facilities, the high cost of IT investment combined with insufficient Medicaid payment, serves as a significant barrier to higher rates of IT adoption.

III. Findings and Recommendations

Rapid progress within hospital and health systems in terms of EMR systems, even relative to other states, was a very positive finding. Also positive is the broad recognition among health plans of the value of wider health care IT development, the impressive "smart" EMR capabilities being implemented by integrated delivery system-model health plans (e.g., Kaiser and Sentara) and the incentives for provider adoption of certain IT tools tied to patient safety and quality outcomes built into Anthem's Q-HIP program. In certain cases, these EMR tools are also being extended to affiliated providers in the community, especially with health systems that include large physician practice components.

Less positive, but not at all surprising, was the relatively limited progress made toward ensuring the interoperability of these systems across sectors and regions – although the MedVirginia Richmond initiative offered some promise in this area. The cost of IT systems remains a barrier for smaller hospitals and most nursing homes.

The subcommittee research and resulting discussions focused on various strategies the state and significant private stakeholders could employ to advance health care IT/EMR

development and interoperability. It was generally agreed by the group that the vast majority of health care is delivered locally or regionally, so that regional EMR and data-sharing initiatives should be the locus for most IT data-sharing initiatives. The specific organizational structure and focus for such regional health care information organizations (commonly referred to as RHIOs) can and should vary.

The current federal policy environment, the nature of many Virginia health care markets (e.g., strong regional systems), state level capabilities and initiatives and the results of the subcommittee's research all point to an environment that is ripe for collaborative initiatives that build IT bridges that connect disparate components of an electronic health record and advance common quality, health improvement and efficiency goals. But with the important exceptions of regional efforts underway in Richmond and in the Southwest, there is little in the way of cross-sector or community-wide health care data linkage initiatives in the Commonwealth.

A. Near Term Recommendations

A spark or catalyst is needed to accelerate development of the health care information infrastructure envisioned in the Task Force's charge. To provide this catalyst, especially with regard to interoperability of health care institution EMR systems, the subcommittee recommends that the full Task Force, Governor and Legislature provide financial and technical assistance, with matching federal and stakeholder resources, towards the formation and evolution of regional health care information-exchange organizations (RHIOs) in the Commonwealth that: a) involve provider organizations, health plans, employers, and public partners; b) operate in a manner consistent with emerging federal standards and certification processes; and c) establish secure, reliable and sustainable mechanisms for the transmission and use of electronic health record information systems among patients, health care providers and other authorized users. In order to better ensure patient privacy, the subcommittee also recommends that any state-supported RHIOs operate in a manner that serves as a hub or connector among existing electronic health record systems, rather than as a central repository for patient identified information. Additionally, a hub solution would also likely be much easier and less costly to deploy than one or more large data repositories.

The subcommittee further recommends that the Task Force, Governor and Legislature specifically task one or more of such RHIOs with the following in the near term:

1. Taking primary responsibility for designing and maintaining a master patient index system (for use by the Commonwealth with the immunization data base and as a tool that supports other regional initiatives);

2. Ensuring that medication data and histories can be shared in real-time with authorized users (e.g. emergency physicians) in a fashion that:
    a. Fully complies with state and federal privacy standards;
    b. Includes Medicaid and state-employee data;

c. Shares existing medication information from health plan, pharmacy and other medication sources;
d. Ties to regional and health system EMR systems so that practitioners at the site of care have access to more complete medication histories;
e. And supports e-prescribing systems and tools.

Each of these items - designing a secure and reliable methodology for properly linking health care information with specific individuals and linking existing medication information to patient-authorized users – are top priorities of an effective health care information infrastructure. Commonwealth leadership in this area could significantly accelerate the scope and pace of EMR development for all populations.

The Commonwealth has a particular policy interest in MPI systems for ensuring patient privacy, security and reliability of the information. It also has some experience within the Health Department as part of developing and maintaining the immunization registry.

Concerning medications the state also has a particular interest in its purchaser role since Medicaid is a major insurer for those with chronic diseases whose treatment often requires multiple prescriptions. To the extent that accurate medication histories could be drawn from existing health plan and other data sources, and shared in real-time with authorized providers, complications can be avoided, care quality and cost-effectiveness can be enhanced.

The final near term recommendation from the subcommittee is to support expanded collection of ED treatment data for public health purposes by:

2. Broadening participation in current ESSENCE system among hospital emergency rooms;
3. Making submissions more timely and efficient via standardized and routine electronic reporting systems (e.g., North Carolina);
4. Incorporating feedback loops and systems so that authorized personnel (ED directors, regional emergency medical coordinators, emergency physicians) receive key “dashboard” results; and
5. Extending reporting fields as necessary for public health and preparedness purposes.

The Commonwealth has a compelling public health need to be better prepared to monitor and respond to disease outbreaks, regardless of origin. Clinically driven and scientifically sound syndromic surveillance systems, with hospital emergency departments a key contributor, are being piloted in other states and in parts of the Commonwealth. The subcommittee recommends expansion of these initiatives with input from an expert advisory body and under the auspices of the Virginia Department of Health.

B. Longer Term Recommendations

In addition to the above initial priorities, the subcommittee discussed longer term goals with regard to interoperability of health care institution EMR systems. Impediments to universal EMR system adoption and interoperability are well addressed elsewhere, although there is cause for cautious optimism that national certification and standardization efforts will address some of these technical impediments in the near term.

But as the subcommittee's survey results show, costs of these systems are also an impediment to full IT development for smaller hospitals and are a significant barrier for most long term care facilities.

However, if a) sufficient incentives and supports from public and private payers are provided to overcome the cost limitations, and b) state and federal interoperability standards are promulgated and incorporated by the vendor community, the subcommittee believes that acute health care institutions can be expected to be have fully interoperable EMR systems in place within five years. Interoperable hospital EMR systems within five years would mean that a patient transferred from one hospital to another will have their hospital diagnosis and treatment information go with them and that this information could be used and applied by the receiving organization.

Longer-term goals with regard to the public mental health system and long term care sectors must await further information gathering in Phase II of the Task Forces work.

Virginia Hospital IT Adoption

Sample: Sample consists of 53 hospitals. Hospitals were separated in to 3 groups based on revenues. Group 1 (N=7) has revenues over 300 million dollars. Group 2 (N=19) has revenues between 100 million and 300 million. Group 3 (N=27) has revenues less than 100 million. Together the hospitals represent 76% of net revenue for 2003 (EPICS).

Part I. Have you adopted IT in the following non-clinical areas?

Patient accounts department--% reporting yes

Group1	100%
Group 2	100%
Group 3	96%

Patient scheduling systems --% reporting yes

Group1	86%
Group 2	84%
Group 3	78%

Pharmaceuticals supply chain management --% reporting yes

Group1	100%
Group 2	100%
Group 3	93%

Medical-surgical supply chain management --% reporting yes

Group1	100%
Group 2	89%
Group 3	93%

Summary: Information technology has been adopted in all non-clinical areas to a large degree. Patient scheduling systems lag behind other systems but are still widely used by in Virginia's facilities.

Are you actively considering, testing or using any IT for clinical purposes? (example: EHR, CPOE, telemedicine, pharmacy and laboratory systems)-- % reporting Yes

Group1	100%
Group 2	100%
Group 3	96%

Summary: Only one hospital out the 53 is not actively considering, testing or using IT for clinical purposes. This facility is a long-term care, skilled nursing facility.

Part II. HIT systems implemented or being considered at your hospital.

The analysis gives the two most common answers (greater than 50% response for the choice of options). Options are:

- Partially or fully implemented
- Testing
- Considering implementing in next 3 yrs
- Not in place & not considering implementing

"Partially or fully implemented" indicates commitment of time, money, training and ongoing resources. "Testing" indicates actively investigating a system and determining its "fit" with the organization. "Considering implementing in the next three years" indicates not commitment at the present time but interest exists. "No plan" indicates no interest in adopting the health information technology listed. Of note was the finding that few organizations are in a testing phase with any one health information technology. For the most part they have either partially or fully adopted the technology or are considering adopting it in three years.

Use of bar coding for:

a. laboratory specimens

Group I	86% part or fully implemented	14% considering implementing in 3 yrs
Group 2	68% part or fully implemented	26% considering implementing in 3 yrs
Group 3	48% part or fully implemented	19% not considering

Group 1 split between the two options listed.
Group 3 is the only group that reported not considering bar coding for lab specimens

b. tracking pharmaceuticals

Group I	57% part or fully implemented	43% considering implementing in 3 yrs
Group 2	53% considering implement in 3 yrs	47% part or fully implemented

Group 3	52% part or fully implemented	33% considering implement in 3 yrs

Groups 1 & 2 split between the two options listed.

c. pharmaceutical administration

Group I	71% considering implement in 3 yrs	29% part or fully implemented
Group 2	68% considering implement in 3 yrs	26% part or fully implemented
Group 3	48% part or fully implemented	33% considering implement in 3 yrs

Group 1 split between the two options listed.
Group 3 has more implementation than Group 2 does.

d. supply chain management

Group I	57% part or fully implemented	29% not considering
Group 2	53% considering implement in 3 yrs	47% part or fully implemented
Group 3	63% part or fully implemented	26% not considering

Groups 1 and 2 have % not considering bar coding for supply chain management

e. patient ID

Group I	57% part or fully implemented	43% considering implement in 3 yrs
Group 2	47% part or fully implemented	47% considering implement in 3 yrs
Group 3	52% part or fully implemented	33% considering implement in 3 yrs

Group1 only group likely to have 100% patient bar coding in 3 years.

Summary: The largest hospitals are the furthest along in implementing bar coding for patient identification. Five of the seven hospitals in this group have fully implemented bar coding for identifying patients and a sixth hospital has partially implemented the system. The seventh hospital expects to have it implemented in three years. About half the hospitals in Group 2 have fully implemented bar coding for patient identification. One hospital in this group currently has no plans to implement the technology the others expect to have it in place in three years. In Group 3, three facilities have no plans to implement. The other 24 hospitals have either implemented it or are planning to do so in three years.

Today, bar coding is most likely to be used to manage specimens in hospital laboratories. Going forward, it will probably become more commonplace in pharmaceutical tracking and administration. The area least likely to see full implementation is in the area of supply chain management. This is perhaps unusual given the uniform use of bar coding by material management vendors.

Use of other information technology:

a. Use of Telemedicine
b. Use of Radio Frequency ID
c. Physician Use of Personal Data Assistant

Definitions:

Telemedicine: The use of medical information exchanged from one site to another using electronic communications for the health and education of patients or providers and to improve patient care.

Radio Frequency Identification (RFID): RFID consists of a tag, which is made up of a microchip with a coiled antenna, and an interrogator or reader with an antenna. The reader sends out electromagnetic waves that form a magnetic field when they "couple" with the antenna on the RFID tag. A passive RFID tag draws power from this magnetic field and uses it to power the microchip's circuits. The chip then modulates the waves that the tag sends back to the reader and the reader converts the new waves into digital data.

Personal Digital Assistant: A term used to describe computers small enough to fit in the palm of your hand and provide computing and data storage abilities.

a. Use of Telemedicine

Group I	100% part or fully implemented	
Group 2	63% part or fully implemented	32% considering implement in 3 yrs
Group 3	67% part or fully implemented	19% considering implement in 3 yrs

No testing in any hospital

b. Use of Radio Frequency ID

Group I	100% consider in 3 years	
Group 2	74% consider implement in 3yrs	11% part or fully implemented
Group 3	59% consider implement in 3yrs	33% no plan

No testing in any hospital

c. Physician Use of Personal Data Assistant

Group I	100% part or fully implemented	
Group 2	63% part or fully implemented	22% considering implement in 3 yrs
Group 3	37% considering implement in 3 yrs	33% part or fully implemented

No testing in any hospital

Summary: Telemedicine and physician use of personal data assistants have been adopted by most large and medium sized hospitals. Small hospitals are likely to adopt telemedicine first followed by use of a personal data assistant. Radio frequency identification is being used by only a small number of medium size hospitals. Group1 and Group 3 have not adopted it at all.

Use of EHR functions (Electronic Health Record: Electronically originated and maintained clinical health information, derived from multiple sources, about an individual's health status and healthcare. An EHR replaces the paper medical record as the primary source of patient information.):

a. Access to current medical records (observations, orders)

Group I	100% part or fully implemented	
Group 2	95% part or fully implemented	5% considering implement in 3 yrs
Group 3	81% part or fully implemented	19% considering implement in 3 yrs

No testing in any hospital

b. Access to medical history

Group I	100% part or fully implemented	
Group 2	63% part or fully implemented	22% considering implement in 3 yrs
Group 3	89% part or fully implemented	11% considering implement in 3 yrs

No testing in any hospital

c. **Access to patient flow sheets**

Group I	86% part or fully implemented	14% testing
Group 2	63% part or fully implemented	22% considering implement in 3 yrs
Group 3	77% part or fully implemented	23% considering implement in 3 yrs

d. **Access to patient demographics**

Group I	100% **fully** implemented	
Group 2	95% part or fully implemented	5% considering implement in 3 yrs
Group 3	89% part or fully implemented	11% considering implement in 3 yrs

No testing in any hospital

e. **Clinical – guidelines and pathways**

Group I	100% part or fully implemented	
Group 2	68% part or fully implemented	15% considering implement in 3 yrs
Group 3	37% considering implement in 3 yrs	33% part or fully implemented

No testing in any hospital

f. **Access to Picture Archiving and Communications (PACs)**

Group I	100% **fully** implemented	
Group 2	68% part or fully implemented	11% considering implement in 3 yrs
Group 3	54 % part or fully implemented	23 % part or fully implemented

g Order entry – Lab

Group I	100% **fully** implemented	
Group 2	100% part or fully implemented	
Group 3	96% part or fully implemented	4% considering implement in 3 yrs

No testing in any hospital; 80% Group 3 **fully** implemented

h. Order entry: Radiology

Group I	100% **fully** implemented	
Group 2	100% part or fully implemented	
Group 3	96% part or fully implemented	4% considering implement in 3 yrs

No testing in any hospital; 80% Group 3 **fully** implemented

i. Order entry: Pharmacy

Group I	100% **fully** implemented	
Group 2	84% part or fully implemented	16% considering implement in 3 yrs
Group 3	89% part or fully implemented	11% considering implement in 3 yrs

j. Results review: Consultant report

Group I	100% **fully** implemented	
Group 2	90% part or fully implemented	10% considering implement in 3 yrs
Group 3	92% part or fully implemented	8% considering implement in 3 yrs

No testing in any hospital

k. Results review – Lab

Group I	100% **fully** implemented	
Group 2	100% part or fully implemented	
Group 3	100% part or fully implemented	

l. Results review Radiology report

Group I	100% **fully** implemented	
Group 2	100% **fully** implemented	
Group 3	96% part or fully implemented	4% considering implement in 3 yrs

No testing in any hospital

m. Results review - Radiology images

Group I	100% **fully** implemented	
Group 2	79% part or fully implemented	11% testing
Group 3	69% part or fully implemented	15% considering implement in 3 yrs

n. Results review – Other

Group I	100% **fully** implemented	
Group 2	95% part or fully implemented	5% considering implement in 3 yrs
Group 3	85% part or fully implemented	7% considering/ 7% no plans

No testing in any hospital

o. Patient support through home-monitoring, self testing, and interactive patient education

Group I	67% **partially** implemented	33% considering implement in 3 yrs
Group 2	44% **partially** implemented	32% considering implement in 3 yrs
Group 3	42% no plans	27% part or full 27% considering in 3yrs

Summary:

Access to medical records, medical history, patient flow sheets, patient demographics, clinical guidelines, picture archiving and communication: Overall, the hospitals have either completed implementing IT systems to access information about or for patients or are in the process of implementing them. Size appears to influence speed of adoption. Group 1 hospitals are more likely to have fully implemented information technology these areas with the exception of patient flow sheets. In the areas of medical records and patient demographics, the hospitals in Group 2 hospitals are close to completing adoption. In the Group 3 hospital, information technology is most likely to be applied to access to medical histories and patient demographics and least likely to link patient care with patient guidelines and pathways.

Order entry of lab, radiology and pharmacy orders: These systems have been fully adopted by the majority of hospitals. Based on the responses, one could predict 100% hospitals in the group to have them operational in 3 years.

Results review of consultant, lab, radiology, radiology image and other tests: Group 1 hospitals have fully implemented IT in these areas. Only in Group 3, are there hospitals that are not planning to have all the report functions implemented in three years.

Patient support through home-monitoring, self testing, and interactive patient education: While all the Group 1 and 2 hospitals could be expected to have patient support systems up and running in three years, this cannot be said of hospitals in Group 3 as 42% of them have no plans for adopting the patient support systems listed.

EHR functions accessible in:

a. Hospital

Group I	100% **fully** implemented	
Group 2	95% part or fully implemented	5% considering implement in 3 yrs
Group 3	92% part or fully implemented	8% considering implement in 3 yrs

b. Emergency Department

Group I	100% **fully** implemented	
Group 2	100% part or fully implemented	
Group 3	92% part or fully implemented	8% considering implement in 3 yrs

No testing

c. Pharmacy

Group I	100% **fully** implemented	
Group 2	84% part or fully implemented	16% considering implement in 3 yrs
Group 3	89% part or fully implemented	11% considering implement in 3 yrs

No testing

d. Clinics – Onsite

Group I	100% part or fully implemented	
Group 2	90% part or fully implemented	10% no plans
Group 3	92% part or fully implemented	4% considering implement in 3 yrs

No hospital testing

e. Clinics – Offsite

Group I	100% part or fully implemented	
Group 2	84% part or fully implemented	10% no plans
Group 3	92% part or fully implemented	4% considering implement in 3 yrs

f. MD offices – Onsite

Group I	100% part or fully implemented	
Group 2	95% part or fully implemented	5% no plans
Group 3	92% part or fully implemented	4% considering implement in 3 yrs

g. MD offices – Offsite

Group I	100% part or fully implemented	
Group 2	90% part or fully implemented	10% no plans
Group 3	92% part or fully implemented	4% considering implement in 3 yrs

h. Other remote locations

Group I	100% part or fully implemented	
Group 2	89% part or fully implemented	11% no plans
Group 3	88% part or fully implemented	8% considering implement in 3 yrs

Summary: Hospital adoption of electronic health record technology appears to stimulate the records being available in all areas of the enterprise. Hospital, emergency department and pharmacy service records are most likely to be linked electronically in all hospitals within three years. The Group 1 hospitals have already completed this process. Group 1 hospitals have either implemented electronic health records in the additional patient areas or are in the process of doing so. A small percentage of Group 2 hospitals have no plans to link patient records outside of hospital inpatient, emergency department and pharmacy services.

CPOE functions (Computerized Physician Order Entry: A computer-based system that automates and standardizes the clinical ordering process in order to eliminate illegible, incomplete and confusing orders. These systems often incorporate, or integrate with, decision support systems.

a. Access to current medical records

Group I	86% part or fully implemented	14% considering in 3 yrs
Group 2	68% part or fully implemented	26% considering in 3 yrs
Group 3	64% part or fully implemented	32% considering in 3 yrs

b. Access to patient flow sheets

Group I	86% part or fully implemented	14% considering in 3 yrs

Group 2	68% part or fully implemented	26% considering in 3 yrs
Group 3	61% part or fully implemented	30% considering in 3 yrs

c. Access to patient demographics

Group I	86% part or fully implemented	14% considering in 3 yrs
Group 2	58% part or fully implemented	37% considering in 3 yrs
Group 3	64% part or fully implemented	28% considering in 3 yrs

d. Real time Drug interaction alerts

Group I	71% part or fully implemented	29% considering in 3 yrs
Group 2	63% considering in 3 yrs	32% part or fully implemented
Group 3	56% considering in 3 yrs	20% part or fully implemented

Group 2 & 3—size affects adoption

e. Back end Drug interaction alerts

Group I	71% part or fully implemented	29% considering in 3 yrs
Group 2	68% considering in 3 yrs	26% part or fully implemented
Group 3	48% part or fully implemented	48% considering in 3 yrs

f. Order entry – Pharmacy

Group I	57% part or fully implemented	43% considering in 3 yrs
Group 2	79% considering in 3 yrs	16% part or fully implemented
Group 3	83% considering in 3 yrs	8 % **fully** implemented

Group 3 fully implemented not affected by system affiliation.

g. Order entry – Lab

Group I	57% part or fully implemented	43% considering in 3 yrs
Group 2	63% considering in 3 yrs	36% part or fully implemented
Group 3	76% considering in 3 yrs	16% part or fully implemented

h. Order entry – Radiology

Group I	57% part or fully implemented	43% considering in 3 yrs
Group 2	63% considering in 3 yrs	32% part or fully implemented
Group 3	76% considering in 3 yrs	16% part or fully implemented

i. Report review – Image review

Group I	86% **fully** implemented	14% considering in 3 yrs
Group 2	55% part or fully implemented	26% considering in 3 yrs
Group 3	54% part or fully implemented	46% considering in 3 yrs

j. Results review – Consultant report

Group I	86% part or fully implemented	14% considering in 3 yrs
Group 2	55% part or fully implemented	26% considering in 3 yrs
Group 3	56% part or fully implemented	40% considering in 3 yrs

k. Results review – Lab

Group I	86% part or fully implemented	14% considering in 3 yrs
Group 2	61% part or fully implemented	16% considering in 3 yrs
Group 3	58% part or fully implemented	38% considering in 3 yrs

l. Results review – Other

Group I	86% part or fully implemented	14% considering in 3 yrs
Group 2	47% considering in 3 yrs	41% part or fully implemented
Group 3	55% part or fully implemented	26% considering in 3 yrs

m. Patient support through home-monitoring, self-testing, and interactive patient education

Group I	67% considering in 3 yrs	33% **partially** implemented
Group 2	77% considering in 3 yrs	18% no plans
Group 3	56% part or fully implemented	40% considering in 3 yrs

CPOE functions accessible in:

a. Hospital

Group I	71% part or fully implemented	29% considering in 3 yrs
Group 2	58% considering in 3 yrs	37% part or fully implemented
Group 3	67% considering in 3 yrs	25% part or fully implemented

Size affects adoption

b. Emergency Department

Group I	71% **fully** implemented	29% considering in 3 yrs
Group 2	58% part or fully implemented	37% considering in 3 yrs
Group 3	44% part or fully implemented	36% considering in 3 yrs

c. Pharmacy

Group I	71% **fully** implemented	29% considering in 3 yrs
Group 2	58% considering in 3 yrs	32% part or fully implemented
Group 3	78% considering in 3 yrs	17% part or fully implemented

d. Clinics-Onsite

Group I	50% part or fully implemented	33% considering in 3 yrs
Group 2	53% considering in 3 yrs	16% no plans
Group 3	54% considering in 3 yrs	25% testing

e. Clinics-Offsite

Group I	42% part or fully implemented	42% considering in 3 yrs
Group 2	59% considering in 3 yrs	27% testing
Group 3	52% considering in 3 yrs	26% testing

f. MD offices-Onsite

Group I	57% part or fully implemented	29% considering in 3 yrs
Group 2	53% considering in 3 yrs	16% no plans
Group 3	54% considering in 3 yrs	25% testing

g. MD offices-Offsite

Group I	42% part or fully implemented	42% considering in 3 yrs
Group 2	53% considering in 3 yrs	26% part or fully implemented
Group 3	54% considering in 3 yrs	25% testing

h. Other remote locations

Group I	42% part or fully implemented	42% considering in 3 yrs
Group 2	58% considering in 3 yrs	16% no plans
Group 3	74% considering in 3 yrs	13% part or fully implemented

Summary: CPOE has received a lot of press in the lay and professional literature about its contribution to patient safety. Its adoption appears to be lag behind that of electronic health records. This may indicate that the organizations choose first to automate the care and tracking of inpatient and emergency room care, before turning to transforming the physician ordering process. The Group 1 hospitals are further along in CPOE adoption. For the most part, Group 2 and 3 hospitals are postponing adopting these systems for 3 years.

Do you have standalone IT systems in the following areas?

Note Group 3: 26% of cases (7 out of 27) did not respond. To maintain consistency and not overstate the presence of integrated stand alone systems, it was assumed that the non-respondents did not have stand alone IT systems and had not integrated them. If a hospital, with stand alone systems, has also integration those systems, the numbers in the two columns will be the same because the % is calculated against the total in the group. Example: Picture archiving for Group 1 and 3.

Catheterization Laboratory	Have stand alone IT	Yes—Have IT **and** it is Integrated
Group I	100%	71%
Group 2	79%	53%
Group 3	37%	19%

Ambulatory Surgery Unit	Have stand alone IT	Yes—Have IT **and** it is Integrated
Group I	43%	29%
Group 2	53%	26%
Group 3	37%	26%

Off-Site Ambulatory Care Unit	Have stand alone IT	Yes—Have IT **and** it is Integrated
Group I	43%	29%
Group 2	44%	21%
Group 3	22%	22%

Critical/Intensive Care Unit	Have stand alone IT	Yes—Have IT **and** it is Integrated
Group I	43%	14%
Group 2	44%	21%
Group 3	15%	4%

Picture Archiving & Communications Unit	Have stand alone IT	Yes—Have IT **and** it is Integrated
Group I	100%	100%
Group 2	68%	66%
Group 3	44%	44%

Emergency Department	Have stand alone IT	Yes—Have IT and it is Integrated
Group I	43%	43%
Group 2	63%	58%
Group 3	59%	52%

Summary: Stand alone systems are neither plentiful nor uniformly integrated even among the larger hospitals. Stand alone systems are most likely to be found in the catheterization and picture archiving and communications units. They are also the areas most likely to have integrated their systems with others in the hospital. The Group 3 hospitals are most likely to have Emergency Department stand alone IT and for it to be integrated with other hospital systems.

Part III. Connectivity with others in the health care community

Does your hospital participate in any local/regional arrangements to share electronic patient specific health care information?

Group 1: 95% Share electronic patient specific health care information
Group 2: 84% Share electronic patient specific health care information
Group 3: **59%** Share electronic patient specific health care information

Organizations Participating: To understand the implication of RHIOs, % is calculated for total number in the group rather than subsection. This was done to not overstate the degree of participation.

Share with private practice physician offices

Group I	57%
Group 2	47%
Group 3	37%

Share with Laboratories

Group I	43%
Group 2	21%
Group 3	19%

Share with Free-standing imaging centers

Group I	57%
Group 2	16%
Group 3	15%

Share with Retail pharmacies

Group I	14%
Group 2	21%
Group 3	26%

Share with Long-term care facilities

Group I	57%
Group 2	21%
Group 3	15%

Share with Public Health Department

Group I	43%
Group 2	37%
Group 3	15%

Share with School clinics

Group I	0
Group 2	0
Group 3	0

Share with Other hospitals

Group I	43%
Group 2	0
Group 3	22%

Share with Payers

Group I	43%
Group 2	32%
Group 3	22%

Share with Pharmacy Benefit Managers (PBM's)

Group I	14%
Group 2	0
Group 3	4%

Summary: Sharing of patient information is not uncommon outside a hospital but the entities with which information is shared vary by type of facility by size. The larger the hospital the more likely it is to report patient information sharing. No hospital shares information with a school clinic. Group I hospitals are most likely to share with the entities listed above with the exception of retail pharmacies. Group 2 and 3 hospitals are more likely to share with retail pharmacies than the largest facilities. Further investigation could determine if sharing is an effect of location or system ownership. The lack of sharing among entities that influence type of care or payment may indicate where the options are for developing RHIOs. Private physicians, free standing image centers and long-term care facilities are most likely to have electronic access to hospital patient information.

What do you consider to be barriers to hospital IT adoption?

Initial cost of IT investment

Group I	57% somewhat	29% not	4% significant
Group 2	58% somewhat	42% significant	
Group 3	56% significant barrier	30% somewhat	14% not

Ability to support ongoing costs of hardware and software

Group I	72% somewhat	14% not	14% significant
Group 2	79% somewhat	16% significant	5% not
Group 3	62% somewhat	19% not	19% significant

Interoperability of hardware and software with current systems

Group I	57% somewhat	29% significant	14% not
Group 2	58% somewhat	32% significant	10% not
Group 3	38% significant	31% not	31% somewhat

Inability of technologies to meet needs

Group I	44% somewhat	28% not	28% significant
Group 2	63% somewhat	21% not	16% significant
Group 3	46% somewhat	35% not	19% significant

Availability of well-trained IT staff

Group I	57% not	43% somewhat
Group 2	58% somewhat	42% not
Group 3	69% somewhat	31% not

Acceptance of technology by clinical staff

Group I	57% not	28% somewhat	15% significant
Group 2	53% somewhat	26% not	21% significant
Group 3	58% somewhat	23% not	19% significant

Fear that technology will become obsolete too quickly

Group I	86% not	14% somewhat	
Group 2	58% not	42% somewhat	
Group 3	50% not	39% somewhat	11% significant

Legal barriers to investment and development

Group I	86% not	14% somewhat
Group 2	72% not	28% somewhat
Group 3	92% not	8% somewhat

HIPAA compliance

Group I	57% not	43% somewhat
Group 2	58% not	42% somewhat
Group 3	62% not	38% somewhat

Summary: Cost and problems with interoperability are significant barriers for Group 3 hospitals. Three factors that do not hinder any hospital's adopting information

technology are: fear of obsolescence, legal barriers, and HIPAA compliance. Over half of all the hospitals consider the ability to support ongoing costs of hardware and software somewhat problematic. The ability to hire well-trained IT staff while somewhat problematic is not a significant deterrent for any hospital. A small number of hospitals in each group consider clinician acceptance of technology as a significant barrier to its adoption.

ATTACHMENT D:

SUBCOMMITTEE # 4 REPORT
Technology, interoperability, governance, policy, and legal issues in EHR

Subcommittee Work Plan

Subcommittee #4 agreed to provide two deliverables to the Task Force: 1) a high-level technology plan which supports pilot projects that may be proposed by other Task Force subcommittees and 2) principles for the pilots which ensure privacy and security of electronic health records. The pilot infrastructure, in turn, would serve to support continued progress towards a more complete health information system throughout Virginia in the next 5-10 years. The subcommittee's two deliverables are contained in the Findings and Recommendations section below.

Summary of Subcommittee Meetings

Subcommittee #4 held meetings in July, August, and September 2005. Testimony taken and information provided at the meetings includes:

- **July 27, 2005 -- An overview of current technology practices among the organizations represented by Subcommittee members**
    - *Barbara Baldwin, UVA Health Systems*

UVA Health Systems began using an electronic physician order entry system for in-patients 19 years ago. UVA recently concluded a 3-year RFP process to procure an electronic physician order entry system for out-patients. Implementation of that system is underway for out-patients and will eventually replace the older in-patient technology. Most physicians have familiarity with electronic systems through scheduling, billing, and possibly ordering. Consequently, a best practice identified at UVA is training physicians on how to use the systems and educating them on the benefits of such use, even though it may add non-billable "administrative time" to their work days. Challenges include dealing with different points of data entry (all of which collectively comprise the total electronic health record for an individual patient) and the ability to share information securely among the various UVA Medical Center facilities located throughout the Charlottesville area.

- *Jeff Burke, Bon Secours Health Systems*

Teaching physicians the benefits of EHR is also a best practice identified in the Bon Secours Health System. Currently, physicians are being provided remote access to the Bon Secours network through virtual private networks (VPNs). Medical information is available online at all Bon Secours campuses. This includes physician reports, emergency department records, nursing assessments, vital signs, pharmacy orders, and demographic information in textual form and images of cardiology tests and physician orders. Medication administration in textual form is currently being implemented as are radiology images. The images are very legible via the Web but are not quite "diagnostic quality." A major challenge is to keep all the data elements properly indexed to the right patient which is key for interoperability. A common vendor solution may provide greater interoperability but less functionality versus a niche technology solution which provides maximum functionality but little or no interoperability.

- *Tom Hanes, Sands Anderson Marks Miller*

In pouring through countless boxes of hardcopy medical records in the context of defending medical malpractice lawsuits, there is a tremendous amount of duplication of documents and services. As a result, it is very difficult to get an understanding of the total spectrum of patient care provided.

- *David Hollins, Hospital Corporation of America (HCA)*

HCA chose Meditech as its common EHR vendor to provide interoperability between HCA's nationwide facilities and campuses. Because HCA wanted interoperability, they gave up "best of breed" technology solutions. At this time, HCA does not have a true end-to-end electronic medical record system in any of its hospitals and is just beginning to implement an electronic physician order entry system. Physicians have remote access to the HCA network through virtual private networks (VPNs) using security fobs.

- *Rick Mears, Owens and Minor*

As a nationwide supplier of medical products and supplies, Owens and Minor has become very good at interoperability issues. The company helps to drive IT standards everyday and shows its customers how to leverage their data. From a supply chain view, EHR will help complete a feedback loop back to manufacturers and developers of medical products and supplies.

NOTE: Throughout these presentations, the subcommittee identified funding as a major challenge to EHR. Funding includes initial system implementation and training plus ongoing maintenance and upgrades. In the banking industry, 6% of the operating budget is the average spent on IT. In the health care industry, the average is 2% of the operating budget for IT. As a result, large hospital systems and stand-alone single

hospitals have common challenges around funding EHR. Many stand-alone single hospitals are still doing everything on paper and may fall farther behind larger hospital systems in implementation of EHR if financial incentives are not provided.

- *Stephen Farmer, Anthem Southeast, Inc.*

Stephen Farmer provided the subcommittee with an understanding of the regulatory framework in which EHR must be developed. The top-tier regulating body is the U.S. Department of Health and Human Services (HHS), which is empowered by legislation to set and enforce regulations. The NHII resides in HHS. HHS also established the Centers for Medicare and Medicaid Services. The next tier is designated standards maintenance organizations (DSMO's), which are standard-setting organizations designated by HHS in its regulations to maintain standards for the industry. Some DSMO's deal with the form of the standards. Two of many examples include the Accredited Standards Committee X-12 committee for electronic data interchange of financial and claims information and the Health Level Seven committee for clinical and administrative data (e.g., standardized data elements for EHR). Other committees deal with the data content of the standards. The final tier is other organizations of influence and importance such as the American Medical Association and the American Hospital Association. Groups in all of the tiers influence EHR in some way.

- **August 19, 2005 -- Interoperability and select best practices case study presentations**

In lieu of vendor presentations, the subcommittee requested presentations from various state and local agencies that are known as best practices case studies in EHR. Among the suggestions were Santa Barbara, California; Massachusetts; Indiana; the U.S. military; and Senior Navigator.

- *Katherine Gianola, M.D. – Connecting V.A. Hospitals with VISTA*

VISTA is a free computerized records management system that is currently being utilized within a network of eight V.A. hospitals. The system itself, which was demonstrated through a live connection to a hospital, includes several modules. The physician can document and include in the system a patient's vital signs within particular timeframes, inter-facility consults, medications dispensed and the results of laboratory tests. In addition, the system creates a variety of alerts; one such alert notifies physicians when there is a patient allergy, for example. The system can be used to order medications using an internal pharmacy. These orders are automatically sent to the internal pharmacies or lab. The system can be accessed from any remote location via VISTAweb.

Positive impacts as a result of system implementation include: enhanced patient safety, order checks and alerts, legibility, accountability and timeliness, concurrent provider chart use, better continuity of patient care, decreased verbal order usage, enhanced provider satisfaction and improved medical record documentation.

Lessons learned and tools for successful implementation include: a staged deployment, use a GUI format, seek out super-users and champions, encourage clinical application coordination (nurses and pharmacies), implement a very strong security program and have standing committees in place to address issues as they arise. Finally, it is essential to develop a backup system and have contingencies in place so that patient care is not compromised.

Questions/Comments:

1. How is data from other systems brought into VISTA? DOD records are currently available. Some data is scanned into the system.
2. Are there any arrangements with external pharmacies? Most orders are filled through internal pharmacies.
3. How many FTE's are supporting the system? There are approximately 2200 end-users and there are 4 FTE's supporting the system. There are other people who provide some support but have other responsibilities. It is important to have a full-time Information Security Officer in place.
4. Is voice recognition software used at all? This has been tried but did not work out due to ambient noise within hospitals.
5. How much training would be required for doctors who have never seen the system? There is a very short learning curve; end-users received approximately 4 hours of training with periodic updates as needed.
6. Is billing included? Not yet. There are however, third party vendors who will provide this service.

- *James Lapsley, CEO, Loudon Medical Group, PC -- Connecting Providers Across Northern Virginia with AllScripts*

Loudon Medical Group began their electronic medical records implementation two years ago across fifty locations through a wide area network. The first priority was to eliminate charts and as much paper processing as possible. Putting an electronic medical records system in place is a huge undertaking and is an even larger cultural change for physicians. This must be managed throughout implementation. The decision was made here to implement the entire medical records system by location before moving onto another location. There should be an interface with billing and accounts receivable, however this interface is not easy.

Prior to implementation, Loudon Medical Group spent two years evaluating EMR's. There are many products available in the market today. AllScripts was the system Loudon settled on. Once a system is selected, it is essential to engage physicians in the planning process as best as possible. Having physicians sit on steering committees has been helpful. The return on investment on this project is not favorable. This will cost the Loudon Medical Group revenue due to the fact that physicians are not able to see as many patients; however they are hopeful that this will last only through the phased

implementation period. The use of the EMR will not reduce staff either due to the fact that there will be staff needed to scan in patient information that is not available electronically. The implementation process for any EMR is slow and involves a major cultural change.

The main challenges for the Loudon Medical Group include trying to choose from so many different products, implementation and training.

Questions/Comments:

1. Is there any plan to interface with labs or other hospitals throughout the area? This is extremely expensive; around $30-40K per interface.
2. What about disaster recovery? Loudon Medical Group contracted with a vendor who provides a server farm for backup purposes. There is T1 redundancy as well.
3. Any suggestions to cope with cultural issues? Engage physicians early in the process. Take the time to choose the right product. Offer incentives.

- *Katie Roeper – Connecting Virginia Seniors to Services through a UAI*

Senior Navigator is a nonprofit organization that provides information services to Senior citizens. A database of senior services is provided and is accessible through a website. There is also a community component offered that does not include technology. Senior Navigator is working with Virginia to provide services to seniors through a universal assessment instrument. This is part of the "No Wrong Door" program endorsed by Virginia. Secretary Jane Woods has pulled together a committee to oversee the project. The committee consists of representatives from many Agencies across Virginia. There are currently three pilot projects underway – Peninsula Area, Greater Richmond Area and the Shenandoah Area. The committee is currently working on ways to deliver services to seniors, however there is interest in sharing information between EMR's and Senior Navigator.

Questions/Comments:

1. Any plans to move the program to the western part of the state? Already identifying other communities to roll this out.
2. What is used as the patient's unique identifier? Enter the patient's name and social security number and the system returns a unique identifier.

- *Dr. William Braithwaite – Interoperability from a National Perspective*

In looking at the three presentations already given, it is interesting to consider how interoperability could be achieved. Interoperability is critical for the success of any EMR. According to HL7, the definition of interoperability is "to exchange information and utilize information in ways that are accurate and verifiable when and where needed."

This is not a clear or simple concept. Asking systems to exchange information when there is no connection is almost impossible.

In order to achieve interoperability, there are several qualities that need to be in place. These include:

- Trust – Must come to an agreement or contract where different organizations agree to share information in certain ways and to certain degrees.
- Finances – How will the exchange of information be financed? Who will pay for what?
- Technical standards – Must agree on standards, formats, and structures. HL7 serves as a basis for this. By next August, the HL7 group will release a standard method to move data across systems.

Finally, as stated, connecting across systems is a huge problem. The standards released by the HL7 group is a good format for this committee to use.

- *Dr. James Burns – Report from Association of State and Territory Health Officials*

A conference call was recently held with the members of the Association of State and Territory Health Officials (ASTHO). There were several states represented. They reported the following including Indiana, Minnesota, Rhode Island, Utah, Kentucky, New Hampshire, Pennsylvania, Virginia and Wisconsin:

- Indiana – 2 regional health information organizations (RHIOs) have been formed.
- Minnesota – There is an e-Health Steering Committee in place. The priority areas in which to share information are medications, communicable diseases, and laboratory results.
- Rhode Island – The AHRQ project is trying to establish interoperability across the state through the use of a master patient index.
- Utah – the Utah Health Information Network is in place. One hundred percent of hospitals use this for claims while 90% of physician the network for claims.
- New Hampshire – Community health centers use the same EMR; partnering with Medicaid to look at data sharing.
- Wisconsin – An estimated 35% of practices have an EMR.

In summary, everyone is struggling; there are no easy answers; developing a system takes a long time; and an EMR is expensive, so funding needs to be in place.

- **September 9, 2005 -- Privacy, security, governance, policy, and legal issues**

Staff commented that they have been trying to find common threads throughout the prior meetings in anticipation of compiling a draft report from Subcommittee # 4. It appears that nothing in the Code of Virginia is an impediment to producing an

electronic health record. A question was asked regarding this: If there is nothing in the Code of Virginia to slow things down, is there anything that could help speed things up? For example, are electronic signatures legal? Currently, physicians can fax prescriptions to pharmacists, but they cannot send a prescription electronically with an electronic signature. Staff reported that the Code gives electronic signatures the same legal effect as traditional "wet" signatures. (See Title 1 of the Code of Virginia, section 1-13.32 and Title 59.1 of the Code of Virginia, section 59.1-501.7.) It was suggested that the regulations of the Boards of Medicine and Pharmacy should be encouraging the use of electronic health records and electronic signatures.

It has been suggested that legislation which relieves physicians of malpractice from using an electronic health record could be introduced. Why would using an electronic health record be an issue in court? The subcommittee concluded that this should only be an issue if the record were incorrect or erroneous, which could also happen with paper records. An example was cited where a physician receives an incorrect electronic health record and makes an incorrect diagnosis. It was recommended that a closer look be taken at how the Code addresses this through plaintiff and defense bar associations.

Regarding governance, the subcommittee expressed an interest in what other states are saying about the role of government within electronic health records. The word "governance" itself is tricky when it comes to describing the involvement of government, quasi-government, and private entities. Whatever "governance" may mean in this context, it involves the early involvement of key stakeholders and multi-disciplines. Any form of governance should represent the population.

In order to move forward with EHR in Virginia, it was noted that we should focus on some specific benchmarks, targets, and performance measures. We seem to be working from a high level perspective, so we need to translate this to more specifics. There are pilot projects being recommended within other subcommittees. Delegate O'Bannon discussed his suggestion to develop a pilot project that connects all the emergency departments in the Richmond metropolitan area. Since patient care would be directly affected in this pilot, the project would be something tangible by which to collect benchmark data. It is desirable to perhaps get all three large health provider systems (VCU/MCV, Bon Secours, and Henrico Doctors) in the metropolitan area to agree to share electronic health data. Physicians need to know that a patient has been to another emergency room for treatment before a diagnosis is made at a different hospital.

In order to move forward into something more tangible, it was noted that we must look at the concept of the master patient index. Most subcommittee members agreed that it would be difficult to move forward without developing this. The Virginia Department of Health currently uses a master patient index of some kind to collect bioterrorism information in the NOVA region through a project known as ESSENCE II.

Concerning the master patient index, it was noted that it probably would not be a good idea to use social security numbers for this, nor would it be desirable to assign a number to every citizen in Virginia. Instead of assigning numbers, would there be ways to use technology to manage this process? Creating the master patient index also becomes an infrastructure issue that needs to be addressed. It was agreed that Subcommittee # 4 might be able to recommend ways to form a master patient index. In order to develop the data elements for the master patient index, it might be helpful to match these with the Centers for Medicare and Medicaid Services (CMS). CMS defines key data elements and provides financial incentives if targets are hit. It might also be helpful to look at what the Health Department is doing with ESSENCE II. However this is accomplished, it was agreed that the master patience index itself should remain decentralized. Placing all this information in one centralized database is not desirable for many reasons, including security, redundancy, privacy, and accessibility.

Regarding security, the subcommittee felt that there should not be a problem with the Health Insurance Portability and Accountability Act of 1996 (HIPPA) in the creation of an EHR system as long as entities understand how information is exchanged and everyone agrees. HIPAA sets privacy and security standards and addresses business continuity but not necessarily redundancy.

To move forward with EHR in Virginia, how do we overcome the barrier of dollars for investment in this process? The federal government has focused on regional health information organizations (RHIOs). Some members of the Task Force seem to agree that RHIOs are the place to start since this is where the federal government is currently focusing money. Others disagree and indicate that forming a RHIO "puts the cart before the horse" by creating a clearinghouse mechanism to exchange electronic health records before encouraging the creation of EHR in the first place. It was stated that if a RHIO is formed in Virginia, it could be the keeper of the master index while the patient information itself remains decentralized.

- **Findings and Recommendations -- Technology and Interoperability**

1. Terminology and data elements have been standardized by the National Health Information Infrastructure (NHII), an initiative of the U.S. Department of Health and Human Services. As a result, there is no need for Virginia's pilot projects to "reinvent the wheel" on many of the technology standards that could be adopted from NHII. Additional advantages to adopting NHII standards are that: (i) it would provide a framework upon which to continue to build a more complete health information system in the future and (ii) compliance with federal requirements as a prerequisite to future federal funding would be achieved.

2. The ability to share information about patients across various health provider systems is key to developing EHR in Virginia. The subcommittee does not

recommend that the government issue a health identification number to every citizen; however, a master patient index should be retained at a centralized repository such as a regional health information office (RHIO) that contains enough standardized data elements to accurately identify patients. Records of individual patients should be maintained at decentralized facility locations. This is the model adopted by the Massachusetts Health Data Consortium.

3. In order to develop the data elements for the master patient index, it might be helpful to match these with the Centers for Medicare and Medicaid Services (CMS). CMS defines key data elements and provides financial incentives if targets are hit.

4. The project known as "Essence II" should also be studied carefully to identify best practices in sharing information about patients across various health provider systems and developing a master patient index. The Virginia Department of Health is actively collecting data from nearly 30 emergency rooms, mostly in Northern Virginia and Tidewater, and analyzing the data daily for suspicious patterns of disease and bioterrorist threat. Data is shared with health departments in Washington, D.C. and Maryland so that any pattern in the National Capitol Region can be detected. Essence II is a joint project with Johns Hopkins Advanced Physics Lab and the Defense Advanced Research Projects Agency.

- **Findings and Recommendations -- Privacy And Security**

5. Regulations issued by the federal Department of Health and Human Services (HHS) which implement the Health Insurance Portability and Accountability Act of 1996 (HIPPA) provide minimum acceptable standards for privacy and security of EHR. The standards apply to health information created or maintained by health care providers who engage in certain electronic transactions, health plans, and health care clearinghouses and also address business system continuity and redundancy in the event of disasters such as Hurricane Katrina.

- **Findings and Recommendations – Governance, Policy, and Legal Issues**

6. Governance of EHR in Virginia should be provided by multi-disciplinary stakeholders from the private sector, government, and quasi-government entities and they should be involved early in the discussion of EHR. Focusing on early involvement by key stakeholders may help target important topics such as funding, incentives, and physician acceptance.

7. To provide initial benchmarks in EHR for emergency departments and electronic prescription systems and medication tracking, governance should be closely related to the performance measures and goals required by the Centers for

Medicare and Medicaid Services (CMS). CMS provides financial incentives for attaining performance measures and goals.

8. The Code of Virginia should encourage use of EHR by relieving doctors and hospitals of medical malpractice claims for the mere sharing or reliance on EHR. In other words, sharing or reliance on EHR per se should not be considered negligence. Similar issues have been raised in the context of telemedicine, venue, and credentialing requirements.

9. The Boards of Medicine and Pharmacy should encourage use of EHR in their regulations, including the use of electronic signatures by physicians and pharmacists.

10. As part of its licensing regulations, the Virginia Department of Health should encourage the use of EHR by non-resident companies that own hospitals located in Virginia.

11. Identifying and eliminating legal and regulatory barriers at the federal level should be undertaken by the federal government, particularly for the 110,000 pages of Medicare regulations from the U.S. Department of Health and Human Services.

Members of Subcommittee #4

- Secretary Eugene Huang, chair
- Barbara Baldwin – UVA Health Systems
- Jeff Burke – Bon Secours Health Systems
- Carl Gattuso – VCU Health Systems
- Tom Hanes – Sands Anderson Marks Miller
- David Hollins – Hospital Corporation of America
- Rick Mears – Owens and Minor
- John O'Bannon – Neurologist and Member of the Virginia House of Delegates
- Becky Snead – Virginia Pharmacy Association

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